Operator Interface Products

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Specifications

See Eaton's *Product Specification Guide* on enclosed CD-ROM:

CSI Format: . . . . . 1995 **Section 16902** 2004 **Section 26 29 05**

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ELC Graphics Panels

ELC Graphics Panels

General Description

ELC Graphics Panels are simple to program and easily connect to ELC products. ELC graphics panels make modifying an application quick and easy and also connect to Eaton's MVX drives, IQ Modbus® meters and many other devices. With more than 30 objects that can be placed anywhere on the display, these tough panels also communicate to other major controllers. These graphics panels have two serial ports that can be used simultaneously to communicate. Transfer applications to or from these graphics panels using the handy transfer module. Ten programmable functions keys provide easy-to-change pages, input numeric values, enter alpha-numeric passwords, set, reset and more. Create alarms, password protect, import bitmaps and use many different fonts.

Features

Supported Protocols

- Eaton ELC
- Eaton D50/D32LT, D320
- Eaton MVX ASCII
- Eaton MVX RTU
- Modbus ASCII
- Modbus RTU
- Allen-Bradley DF1
- Mitsubishi FX Series
- Mitsubishi FX2N Series
- Koyo K-Sequence
- LG 200S
- OMRON C-Series
- Siemens S7-200 Series
- ASCII Slave Mode

And more...

Table 35.1-1. ELC Graphics Panel Features

Item	ELC-GP02	ELC-GP04
Display Screen		
Screen	STN-LCD	STN-LCD
Color	Monochromatic	Monochromatic
Backlight	The backlight automatic turn off time is 1–99 minutes (0 = do not to turn off) (backlight life is 50 thousand hours at 25°C)	The backlight automatic turn off time is 1–99 minutes (0 = do not to turn off) (backlight life is 50 thousand hours at 25°C)
Resolution	160 x 32 pixels	128 x 64 pixels
Display range	72 mm (W) x 22 mm (H)	67 mm (W) x 32 mm (H)
Contrast adjustment	15-step contrast adjustment	10-step contrast adjustment
Language font	ASCII: characters (including European fonts) Taiwan: (BIG 5 code) traditional Chinese character font China: (GB2324-80 code) simplified Chinese character font	ASCII: characters (including European fonts) Taiwan: (BIG 5 code) traditional Chinese character font China: (GB2324-80 code) simplified Chinese character font
Font size (ASCII)	5 x 8, 8 x 8, 8 x 12, 8 x 16	5 x 8, 8 x 8, 8 x 12, 8 x 16
ALARM indication LED	1. Power-on indication (flash three times) 2. Flash for communication error or other alarm 3. Special indication by user programming	1. Power-on indication (flash three times) 2. Flash for communication error or other alarm 3. Special indication by user programming
RS-232 LED (yellow)	Flashes when communicating	Flashes when communicating
RS-485 LED (green)	Flashes when communicating	Flashes when communicating
Program memory	256KB flash memory	256KB flash memory
External Interface		
Serial communication port RS-232 (COM1) 9 PIN D-SUB male	Data length: 7 or 8 bits Stop bits: 1 or 2 bits Parity: None/Odd/Even Baud rate: 4800 bps–115,200 bps	Data length: 7 or 8 bits Stop bits: 1 or 2 bits Parity: None/Odd/Even Baud rate: 4800 bps–115,200 bps
Extension communication port RS-485 (COM2) 5-pin removal terminal (RS-485 or RS-422)	Data length: 7 or 8 bits Stop bits: 1 or 2 bits Parity: None/Odd/Even Baud rate: 4800 bps–115,200 bps	Data length: 7 or 8 bits Stop bits: 1 or 2 bits Parity: None/Odd/Even Baud rate: 4800 bps–115,200 bps
Extension slot	The slot for program copy card	The slot for program copy card
Power	24 Vdc input	24 Vdc input

Standards and Certifications

- UL 508
- cUL (CSA C22.2 No. 14)
- CE (Low Voltage Directive); Class 1 Div 2 Groups A, B, C, D
- RoHS

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Product Selection

Graphics Panels

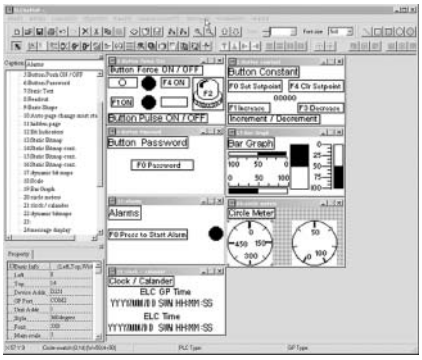
ELC-GP04

Table 35.1-2. Graphics Panels

Description	Catalog Number
Panels	
160 x 32 pixels, 10 function keys, monochrome	**ELC-GP02**
128 x 64 pixels, 10 function keys, monochrome	**ELC-GP04**
Spare Parts Kit	
Includes several power connectors, battery doors, gaskets, mounting clips, etc.	**ELC-GPSPKIT**

Software and Accessories

ELCSoftGP Programming Software



ELCSoftGP

System Requirements

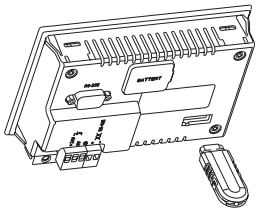
- Operating Systems—Windows 2000, Windows XP

ELCSoftGP Programming Software configures all ELC graphic panels. With ELCSoftGP, applications can be created, edited, downloaded and uploaded. Move programs from one controller to a different one with ease.

Table 35.1-3. ELCSoftGP Editing Environment

Description	Catalog Number
Programming software for GP units	**ELCSOFTGP**

ELC-GPXFERMOD Program Transfer Module



ELC-GPXFERMOD

The ELC-GPXFERMOD is a multi-function device that provides the ability to back up an application already loaded onto one of the ELC-GP units. It will store all system settings such as baud and ID, as well as passwords and the application itself. Once stored in the module, the application and settings can be transferred to another ELC-GP unit of the same model number.

Table 35.1-4. ELC-GPXFERMOD

Description	Catalog Number
Program transfer module	**ELC-GPXFERMOD**

Table 35.1-5. ELC-CBPCELC_

Description	Catalog Number
1m cable to connect between the **HMI** and Eaton Logic Controller (ELC)	**ELC-CBPCELC1**
3m cable to connect between the **HMI** and Eaton Logic Controller (ELC)	**ELC-CBPCELC3**

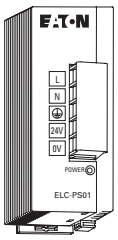
ELC-CBPCGP3 Cable

Use this cable to download or upload applications between a PC and the ELC-GP graphics panels. This cable can also be used to transfer a program from an ELC-GP to another ELC-GP.

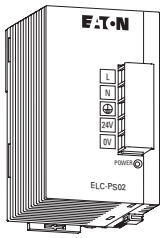
Table 35.1-6. PC to ELC-GPxx Cable

Description	Catalog Number
Cable, PC to ELC-GP, 9.8 ft (3m)	**ELC-CBPCGP3**

Power Supplies



ELC-PS01



ELC-PS02

All ELC modules operate from 24 Vdc. These power supplies provide a convenient way to provide robust DC voltage.

Table 35.1-7. ELC Power Supplies

Description	Catalog Number
Power supply, 24 watt, 1A Power supply, 48 watt, 2A	**ELC-PS01** **ELC-PS02**

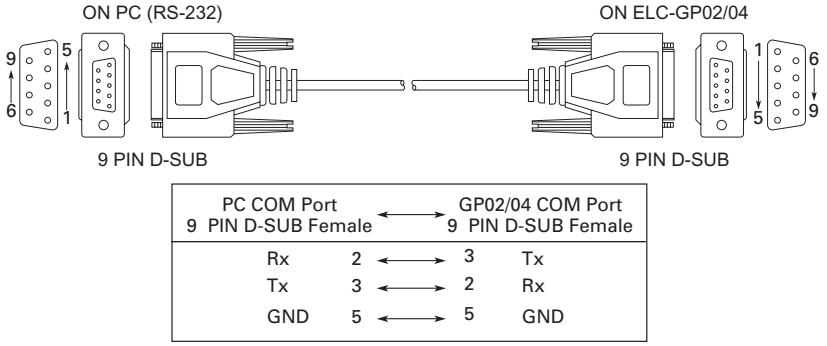


Figure 35.1-1. Pin Definition of 9-Pin D-SUB RS-232

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Technical Data and Specifications

Table 35.1-8. ELC Graphics Panels

Description	Specification
Environmental	
Transportation and storage	
Temperature	–4° to 140°F (–20° to 60°C)
Operating	
Temperature	32° to 122°F (0° to 50°C)
Humidity	20–90% RH (noncondensing)
Communication interface	COM1: RS-232; COM2: RS-485/RS-422
Vibration	0.5 mm displacement, 10–55 Hz, X, Y, Z three directions and two hours for each direction
Impact	10G, 11 ms, from X, Y, Z three directions and three times for each direction
Weight	0.53 lbs (0.24 kg)
Cooling method	Natural air cooling
Electrical/EMC Approvals	
Electrostatic discharge immunity	EN61000-4-2/1995
Radiated immunity	EN61000-4-3/1995
Electrical fast transient	EN61000-4-4/1995
Radiated emission	CISPR22, Class A
Other Approvals	
Waterproof class of front panel	UL Type 4X outdoor rated
UV resistant	UL 746C

Table 35.1-9. ELC Power Supply

Item	ELC-PS01	ELC-PS02
Dimensions W x H x D in inches (mm)	1.44 x 3.54 x 2.36 (36.6 x 89.9 x 59.9)	2.17 x 3.54 x 2.36 (55.1 x 89.9 x 59.9)
Input power	100–240 Vac 50/60 Hz	100–240 Vac 50/60 Hz
Output volts	24 Vdc	24 Vdc
Output current (A)	1A	2A
Watts	24	48

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Dimensions—Approximate Dimensions in Inches (mm)

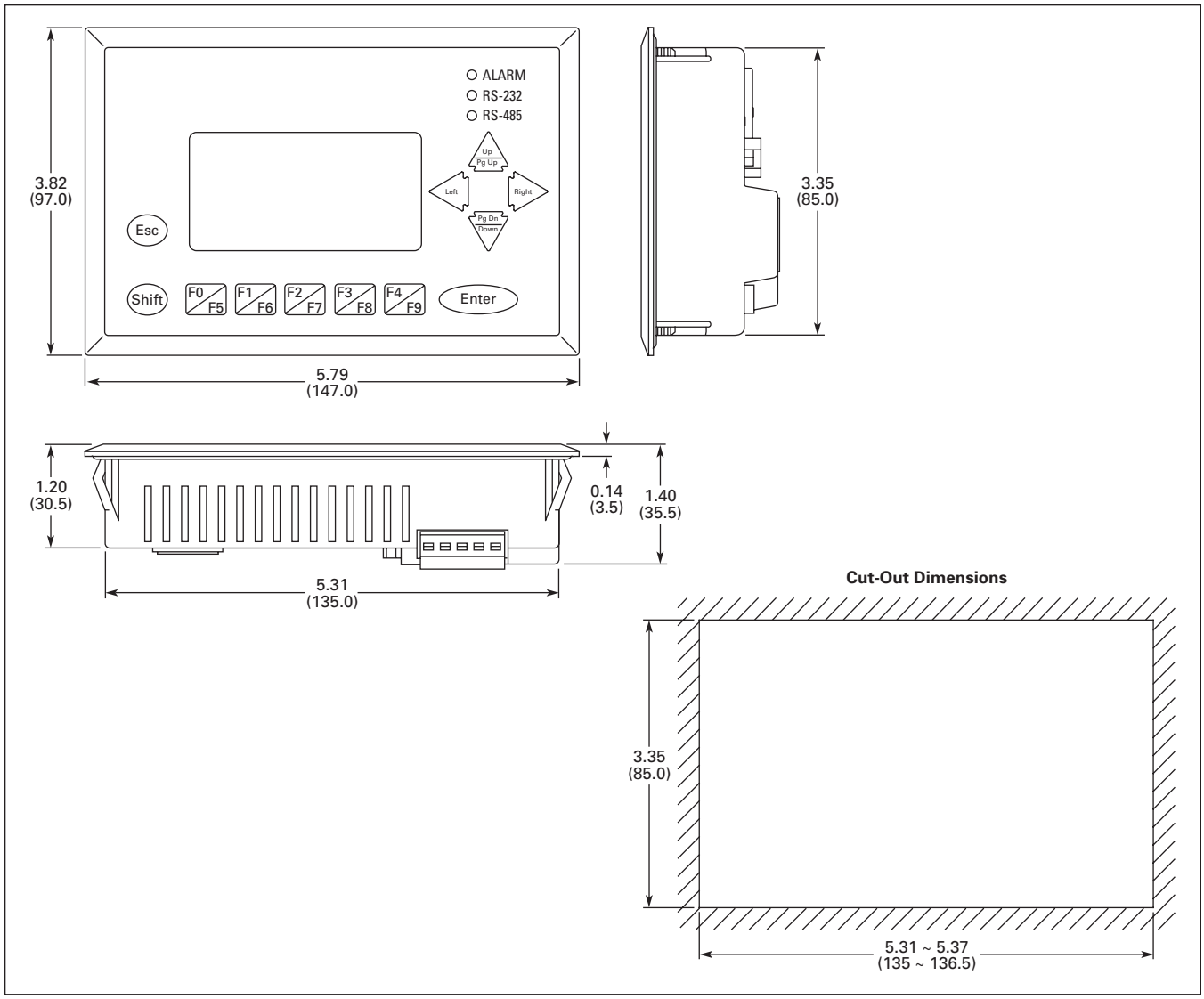

Figure 35.1-2. ELC-GP04

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Dimensions—Approximate Dimensions in Inches (mm)

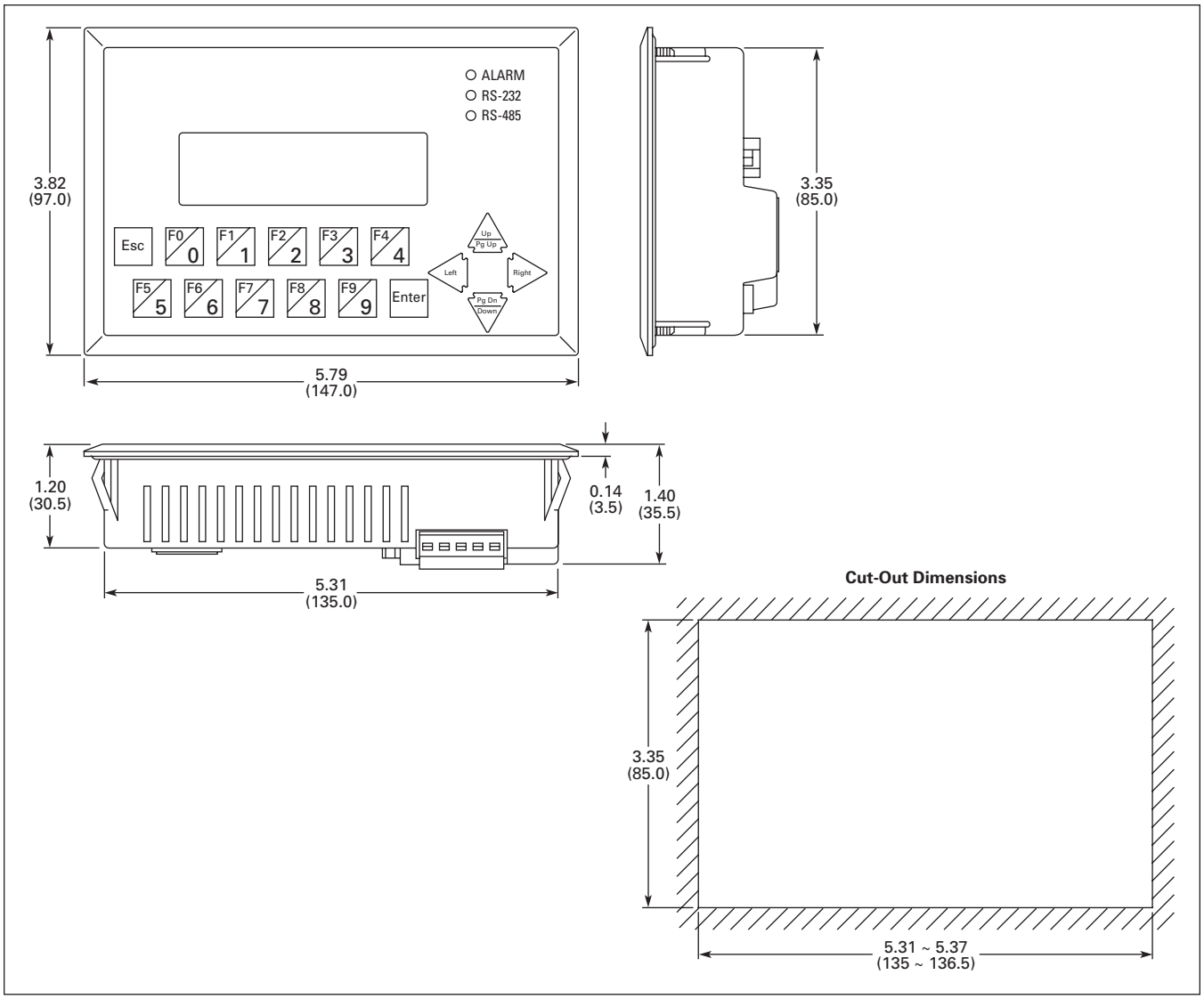

Figure 35.1-3. ELC-GP02

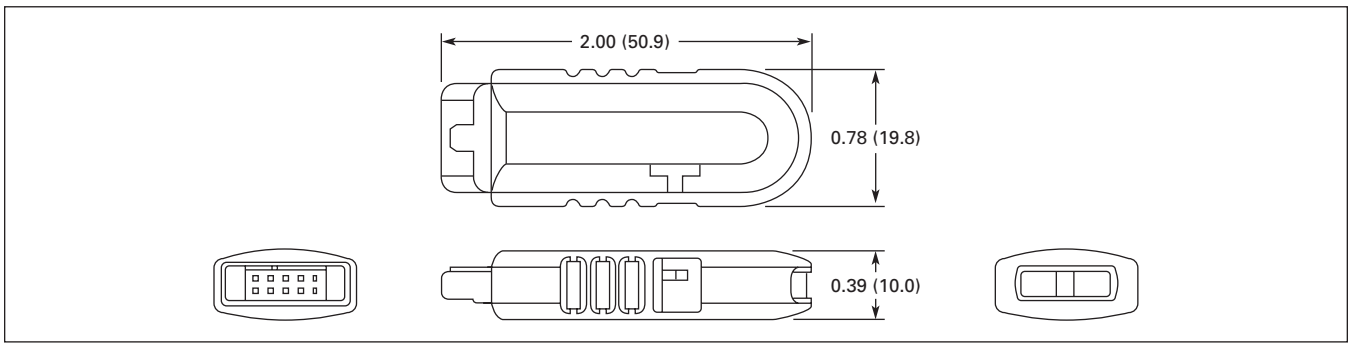

Figure 35.1-4. ELC-GPXFERMOD

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HMi Operator Interface

HMi Operator Interface

General Description

Positioned between the ELC graphics panels and the XV series of operator interfaces, **HMi** is the workhorse of the industry. The units feature touch-screen and function buttons to suit all environments and applications. They range in screen size and color to fit available space and application needs. All units offer RS-232, RS-485 and RS-422 communications. The 6.00, 8.00 and 10.00-inch units also offer Ethernet communication options.

Features

- Analog touchscreen
- Auto-scale application from 10.00 to 4.00 inches
- Screen saver
- Pop-up screens
- Animated graphics
- Conditional visibility
- Clock synchronization
- Data archiving
- Multi-language
- Eight levels of security
- Embedded logic for use with local I/O
- Ethernet communication drivers
- Ethernet, COMM port and USB upload/download
- USB ports for data storage
- Three serial ports
- Up to four simultaneous protocols
- Math and logic functions
- Recipes
- Macro capability
- Alarm/event recording and viewing
- Real-time and historical trending
- Online and offline simulation

Protocols

Table 35.2-1. Supported Protocols

Manufacturer	Protocol
Allen-Bradley	MicroLogix SLC 5
Cimon	BP Series Loader Protocol CP Series Loader Protocol XP Series Loader Protocol
Copley	Stepnet
Danfoss	VLT 2800 (FC Protocol)
Delta	Delta DVP PLC Delta DVP EH/SA ES/EX/SS (V5.1) Delta Controller ASCII Delta Controller RTU Delta DVP TCP/IP
Eaton	ELC Series Serial ELC Series TCP/IP GVX—RTU GVX—ASCII MVX—RTU MVX—ASCII NFX—RTU NFX—ASCII Eaton Controller ASCII Eaton Controller RTU EasyPLC 800/MFD (EasyCom)
Emerson	EC20 Series
Facon	FB Series
Festo	Festo PLC
FuFeng	APC
Fuji Electric	Frenic Inverter
GE Fanuc	Series 90 SNP
Hitachi	EH Series Procedure 1 EH Series Procedure 2
Hust	Hust CNC Controller Hust CNC Controller v2
IDEC	Micro Smart
Jetter	JC Series Nano Series
Keyence	KV/KZ Series
Koyo	DL/SU Series K-Sequence
Lenze	LECOM-A/B Protocol
LG	Master-K 120S/200S Glofa GM6 CNET Master-K CNET XGT CNET
LiYan	LYPLC EX
M2i	M2i Master M2i Slave

Manufacturer	Protocol
Matsushita	FP Series
Mirle	FAMA SC
Mitsubishi	FX Series FX2N FX3U FX Series Computer Link A Series/J71UC24 A2A/A2AS/A2USH A1SH/A3N/A2ASH CPU Port Q Series CPU Port Q Series Computer Link J2s Series
MKS	BY125 CT150 MC700/720
Modbus	ASCII (Master) 984 RTU (Master) RTU 2W (Master) ASCII Hex Address (Master) RTU Hex Address (Master) ASCII nW (Master) RTU nW (Master) ASCII (Slave) RTU (Slave) TCP/IP
Modicon	TSX Micro (Uni-Telway) TSX Premium (Uni-Telway 1-1) NEZA (Uni-Telway) TWIDO
Moeller	PS3 Series PS4 Series
NIKKI DENSO	NCS-FI/FS Series
Omron	C Series CJ1 Series TPM1A
Parker	Compax 3
Siemens	S7 200 S7 300 (with PC adapter) S7 300 (without PC adapter) S7 300 (Direct MPI) S7 300 (ISO TCP)
Taian	TP02
Ti	Ti435
Vigor	M Series
VIPA	S7 300 (with PC adapter)
YOKOGAWA	ACE

Standards and Certifications

- CE
- UL
- cUL
- C-Tick
- RoHS

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Product Selection

Ordering Information

For blank bezel (Eaton logo removed), add suffix **-B**. Example: HMI04BU-**B**. For blank bezel with function buttons, add suffix **-BF**. Example: HMI06CE-**BF**. Contact factory for custom bezel.

*HMI_*

Table 35.2-2. HM*i* Products

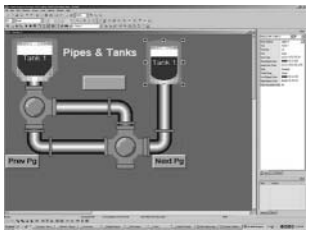
Description	Catalog Number
4.00-inch blue mode touchscreen	**HMI04BU**
4.00-inch color TFT touchscreen	**HMI04CU**
6.00-inch blue mode with expansion slot	**HMI06BE**
6.00-inch gray scale mode with expansion slot	**HMI06GE**
6.00-inch color STN with expansion slot	**HMI06CE**
6.00-inch Color TFT touchscreen	**HMI06CU**
8.00-inch color TFT with expansion slot	**HMI08CE**
10.00-inch color TFT with expansion slot	**HMI10CE**

Software and Accessories

HMIsoft Programming Software

For use with the **HM*i*** series of touchscreens, this software supports all of the features of **HM*i*** models. This easy to use Windows-based software can run on Windows 2000, XP, Vista and Windows 7 with a minimum CPU of Pentium III 500 MHz, 256 MB RAM, 500 MB free hard disk space.

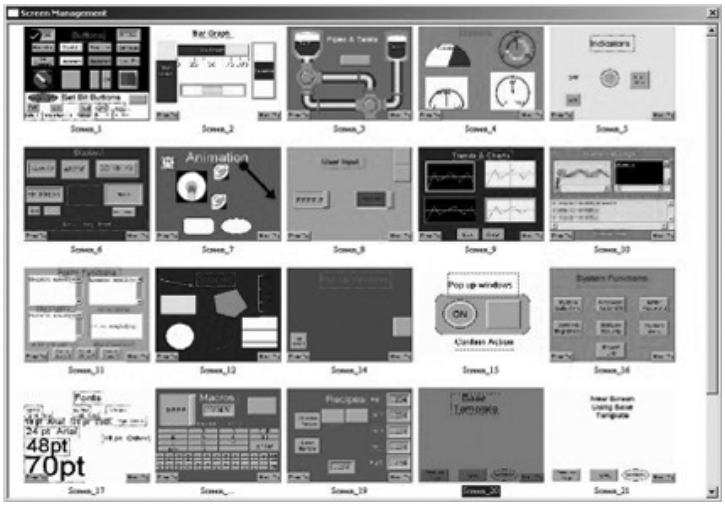
- Simulate an application online or offline
- Built-in picture library
- Create your own picture library
- Screen manager
- Over 70 on-screen objects
- Easy object setup
- Monitor all states of objects
- Macro editing
- Scale application from 10 to 4 inches
- Upload/download applications over USB, serial or Ethernet
- Store archived data, alarms and events to USB
- Logic configuration for I/O expansion modules
- Ethernet communications



HMi Editor

Table 35.2-3. HM*i* Editor

Description	Catalog Number
HM*i* programming software	**HMISOFT**



HMi Screen Management

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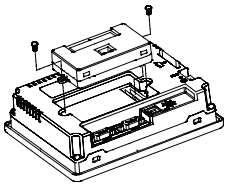
Ethernet Expansion Module

The HMIECENT expansion module adds 10/100 Ethernet communications when plugged into the expansion slot of a 6.00, 8.00 or 10.00-inch **HMi** unit. Upload and download programs and communicate to other supported Ethernet devices listed in the Supported Protocols table. No need to distinguish between patch or crossover cables because this module auto-detects and adjusts for proper operation. Refer to **Table 35.2-14** on **Page 35.2-7** for complete technical data.



HMIECENT

Table 35.2-4. HMIECENT

Description	Catalog Number
Ethernet expansion module	**HMIECENT**

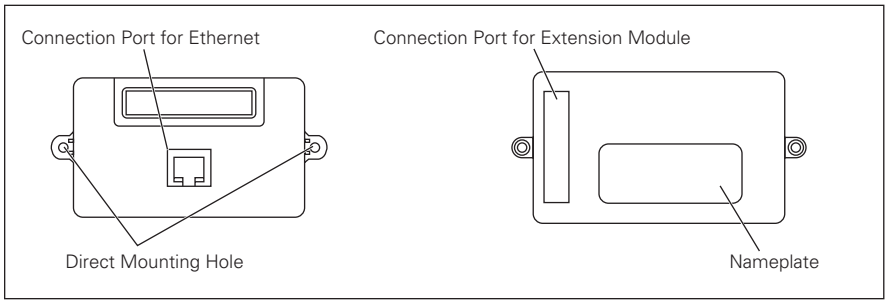


Figure 35.2-1. HMIECENT Product Outline

I/O Expansion Modules

The HMIEC0806 and HMIEC1612 are 14 and 28 discrete I/O expansion modules providing eight DC inputs and six relay outputs or 16 DC inputs and 12 relay outputs. These modules plug into the available expansion slot on the back of the **HMi** unit (not available on the four inch model). No need for a separate PLC controller with this built in unit. Combine operator interface and logic into a single platform—use HMISOFT to build both the ladder logic and OI program. Refer to **Table 35.2-13** on **Page 35.2-6** and **35.2-7** for complete technical data.

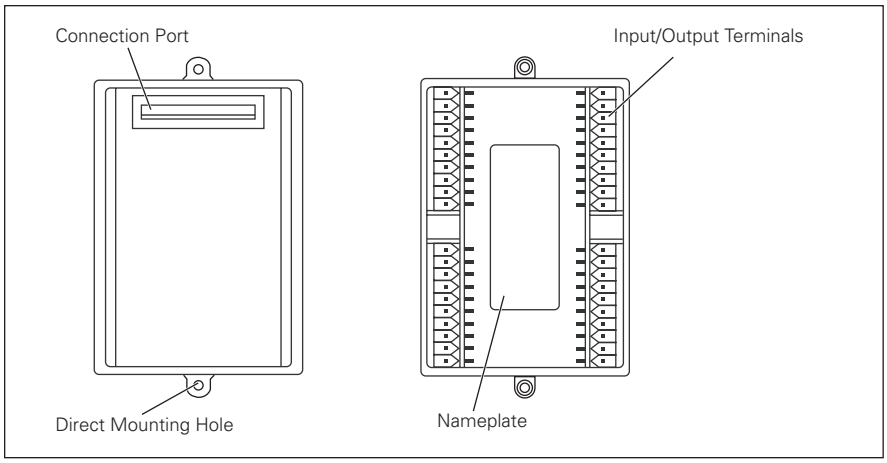


Figure 35.2-2. I/O Expansion Modules Product Outline

Table 35.2-5. I/O Expansion Modules

Power	Input Unit		Output Unit		Catalog Number
	Point	Type	Point	Type	
5 Vdc supplied by **HMi**	8 16	DC Type sink or source	6 12	Relay Relay	**HMIEC0806** **HMIEC1612**

Table 35.2-6. HMIEC_

Description	Catalog Number
I/O expansion module, 8 in/6 out	**HMIEC0806**
I/O expansion module, 16 in/12 out	**HMIEC1612**

Table 35.2-7. Adapter Plate

Description	Catalog Number
6.00-inch **HMi** adapter plate for PM1000	**APPM1HMI6**

Table 35.2-8. Kits

Description	Catalog Number
8.00-inch anti-glare overlay kit (5/kit)	**17AGT**
10.00-inch anti-glare overlay; kit (5/kit)	**39AG**
HMi spare parts kits (includes several power connectors, battery doors, gaskets, mounting clips, etc.)	**HMI-SPKIT**

Table 35.2-9. Replacement Gaskets

Description	Catalog Number
4.00-inch **HMi** replacement gasket (2/kit)	**HMI04-GASKET**
6.00-inch **HMi** replacement gasket (2/kit)	**HMI06-GASKET**
8.00-inch **HMi** replacement gasket (2/kit)	**HMI08-GASKET**
10.00-inch **HMi** replacement gasket (2/kit)	**HMI10-GASKET**

Table 35.2-10. Cable

Description	Catalog Number
1m cable to connect between the **HMi** and Eaton Logic Controller (ELC)	**ELC-CBPCELC1**
3m cable to connect between the **HMi** and Eaton Logic Controller (ELC)	**ELC-CBPCELC3**

Table 35.2-11. Power Supply

Description	Catalog Number
1A 24 Vdc power supply 2A 24 Vdc power supply	**ELC-PS01** **ELC-PS02**

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Technical Data and Specifications

Table 35.2-12. HM*i* Operator Interface

Description	Specification			
	HMI04BU	**HMI04CU**	**HMI06BE**	**HMI06GE**
Display type	STN	TFT LCD	STN	FSTN
Display color	8 blues	65536 colors	8 blues	16 grays
Screen pixels	320 x 240 pixels	320 x 240 pixels	320 x 240 pixels	320 x 240 pixels
NIT rating	100 cd/m^2	300 cd/m^2	130 cd/m^2	130 cd/m^2
LCD module	LED backlight	LED backlight	CCFL backlight	CCFL backlight
Backlight life	10,000 hours half-life at 25°C ①	30,000 hours half-life at 25°C ①	50,000 hours half-life at 25°C ①	50,000 hours half-life at 25°C ①
Display size in inches (mm)	3.8 (78.8 x 59.6)	3.5 (70.1 x 52.6)	5.7 (118.2 x 89.4)	5.7 (118.2 x 89.4)
Operating system	Real Time OS	Real Time OS	Real Time OS	Real Time OS
MCU	32-bit RISC micro-controller/206.4 MHz			
Memory Program History Recipe Alarm Data registers Volatile Non-volatile	 1M 120K 64K ② 4K 64K 1K	 3M 120K 64K ② 4K 64K 1K	 3M 360K 128K 16K 64K 1K	 3M 360K 128K 16K 64K 1K
Backup memory (bytes)	128K	128K	512K	512K
USB host ③	Yes	Yes	—	—
Expansion port	Yes	Yes	—	—
USB client for programming	Yes	Yes	Yes	Yes
Serial COM port COM1 COM2 COM3	 RS-232 RS-422/RS-485 RS-232	 RS-232 RS-422/RS-485 RS-232	 RS-232 RS-232/RS-422/RS-485 RS-232/RS-422/RS-485	 RS-232 RS-232/RS-422/RS-485 RS-232/RS-422/RS-485
Function key	Four user-defined keys + one system key	Four user-defined keys + one system key	Four user-defined keys + one system key	Four user-defined keys + one system key
Perpetual calendar (RTC)	Built-in	Built-in	Built-in	Built-in
Cooling method	Natural air circulation	Natural air circulation	Natural air circulation	Natural air circulation
Enclosure ratings	IP65/NEMA 4X (indoor only)	IP65/NEMA 4X (indoor only)	IP65/NEMA 4X (indoor only)	IP65/NEMA 4X (indoor only)
Agency certifications	CE/UL/cUL/C-Tick	CE/UL/cUL/C-Tick	CE/UL/cUL/C-Tick	CE/UL/cUL/C-Tick
Operating voltage	DC +24V (–10% to +15%) (use isolated power supply) ④			
Power consumption ⑤	2.64W	3.36W	7.2W	7.2W
Operating temp.	32° to 122°F (0° to 50°C)	32° to 122°F (0° to 50°C)	32° to 122°F (0° to 50°C)	32° to 122°F (0° to 50°C)
Storage temp.	–4° to 140°F (–20° to 60°C)	–4° to 140°F (–20° to 60°C)	–4° to 140°F (–20° to 60°C)	–4° to 140°F (–20° to 60°C)
Ambient humidity	10% to 90% RH (0° to 40°C), 10% to 55% RH (41° to 50°C) pollution degree 2			
Shock	30G at 11 ms	30G at 11 ms	30G at 11 ms	30G at 11 ms
Vibration resistance	IEC61131-2 compliant 5 Hz ≦ f < 9 Hz = continuous: 1.75 mm/occasional: 3.5 mm 9 Hz ≦ f < 150 Hz = continuous: 0.5g/occasional: 1.0g X, Y, Z directions for 10 times			
Backup battery	3V lithium battery CR2032 x 1/battery life: 5 years			
Backup battery life	Three years or more at 25°C	Three years or more at 25°C	Three years or more at 25°C	Three years or more at 25°C
Buzzer	Multitone frequency (2K to 4K Hz)/85 dB			
Dimensions (W) x (H) x (D) in inches (mm)	5.54 x 4.13 x 1.76 (140.8 x 104.8 x 44.8)	5.54 x 4.13 x 1.76 (140.8 x 104.8 x 44.8)	7.25 x 5.67 x 1.85 (184.1 x 144.1 x 47.0)	7.25 x 5.67 x 1.85 (184.1 x 144.1 x 47.0)
Panel cutout (W) x (H) in inches (mm)	4.68 x 3.65 (118.8 x 92.8)	4.68 x 3.65 (118.8 x 92.8)	6.79 x 5.21 (172.4 x 132.4)	6.79 x 5.21 (172.4 x 132.4)
Weight in lbs (kg)	0.69 (0.315)	0.62 (0.310)	1.69 (0.768)	1.69 (0.768)

① The half-life of backlight is defined as original luminance being reduced by 50% when the maximum driving current is supplied to **HM*i***. The life of LED backlight shown is an estimated value under 25°C normal temperature and humidity conditions.
② Program memory is used for recipes.
③ USB Host port can provide up to 5V/500 mA of power. Supports USB memory devices and certain USB printers.
④ Use isolated power supply (not applicable for HMI08CE and HMI10CE).
⑤ The value of the power consumption indicates the electrical power consumed by **HM*i*** without peripheral devices. In order to ensure the normal operation, it is recommended to use a power supply which the capacity is 1.5 to 2 times the value of the power consumption.

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Table 35.2-12. HMi Operator Interface (Continued)

Description	Specification			
	HMI06CE	**HMI06CU**	**HMI08CE**	**HMI10CE**
Display type	STN	TFT LCD	TFT LCD	TFT LCD
Display color	256 colors	65536 colors	65536 colors	65536 colors
Screen pixels	320 x 240 pixels	320 x 240 pixels	640 x 480 pixels	640 x 480 pixels
NIT rating	100 cd/m^2	200 cd/m^2	400 cd/m^2	330 cd/m^2
LCD module	CCFL backlight	LED backlight	CCFL backlight	2CCFL backlight
Backlight life	50,000 hours half-life at 25°C ①	50,000 hours half-life at 25°C ①	50,000 hours half-life at 25°C ①	50,000 hours half-life at 25°C ①
Display size in inches (mm)	5.7 (118.2 x 89.4)	5.6 (113.3 x 84.7)	8 (162.2 x 121.7)	10.4 (215.2 x 162.4)
Operating system	Real Time OS	Real Time OS	Real Time OS	Real Time OS
MCU	32-bit RISC micro-controller/ 206.4 MHz	32-bit RISC micro-controller/ 266 MHz	32-bit RISC micro-controller/ 206.4 MHz	32-bit RISC micro-controller/ 206.4 MHz
Memory Program History Recipe Alarm Data registers Volatile Non-volatile	 3M 360K 128K 16K 64K 1K	 7M 125K ② 128K 125K ② 64K 1K	 7M 360K 128K 16K 64K 1K	 7 M 360K 128K 16K 64K 1K
Backup memory (bytes)	128K	128K	512K	512K
USB host ③	—	Yes	Yes	Yes
Expansion port	Yes	—	Yes	Yes
USB client for programming	Yes	Yes	Yes	Yes
Serial COM port COM1 COM2 COM3	 RS-232 RS-232/RS-422/RS-485 RS-232/RS-422/RS-485	 RS-232 RS-232/RS-485 RS-422/RS-485	 RS-232 RS-232/RS-422/RS-485 RS-232/RS-422/RS-485	 RS-232 RS-232/RS-422/RS-485 RS-232/RS-422/RS-485
Function key	Four user-defined keys + one system key	N/A	Six user-defined keys + one system key	Seven user-defined keys + one system key
Perpetual calendar (RTC)	Built-in	Built-in	Built-in	Built-in
Cooling method	Natural air circulation	Natural air circulation	Natural air circulation	Natural air circulation
Enclosure ratings	IP65/NEMA 4X (indoor only)	IP65/NEMA 4X (indoor only)	IP65/NEMA 4X (indoor only)	IP65/NEMA 4X (indoor only)
Agency certifications	CE/UL/cUL/C-Tick	CE/UL/cUL/C-Tick	CE/UL/cUL/C-Tick	CE/UL/cUL/C-Tick
Operating voltage	DC +24V (–10% to +15%) (use isolated power supply) ④			
Power consumption ⑤	7.2W	3.0W	14W	15W
Operating temp.	32° to 122°F (0° to 50°C)	32° to 131°F (0° to 55°C)	32° to 122°F (0° to 50°C)	32° to 122°F (0° to 50°C)
Storage temp.	–4° to 140°F (–20° to 60°C)	–4° to 140°F (–20° to 60°C)	–4° to 140°F (–20° to 60°C)	–4° to 140°F (–20° to 60°C)
Ambient humidity	10% to 90% RH (0° to 40°C), 10% to 55% RH (41° to 50°C) pollution degree 2			
Shock	30G at 11 ms	30G at 11 ms	30G at 11 ms	30G at 11 ms
Vibration resistance	IEC61131-2 compliant 5 Hz ≦ f < 9 Hz = continuous: 1.75 mm/occasional: 3.5 mm 9 Hz ≦ f < 150 Hz = continuous: 0.5g/occasional: 1.0g X, Y, Z directions for 10 times			
Backup battery	3V lithium battery CR2032 x 1/battery life: 5 years			
Backup battery life	3 years or more at 25°C	3 years or more at 25°C	3 years or more at 25°C	3 years or more at 25°C
Buzzer	Multitone frequency (2K to 4K Hz)/85 dB			
Dimensions (W) x (H) x (D) in inches (mm)	7.25 x 5.67 x 1.85 (184.1 x 144.1 x 47.0)	7.25 x 5.67 x 1.85 (184.1 x 144.1 x 47.0)	9.57 x 7.01 x 2.06 (243.1 x 178.1 x 52.4)	11.70 x 8.74 x 2.01 (297.1 x 222.1 x 51.1)
Panel cutout (W) x (H) in inches (mm)	6.79 x 5.21 (172.4 x 132.4)	6.79 x 5.21 (172.4 x 132.4)	9.11 x 6.55 (231.4 x 166.4)	11.23 x 8.28 (285.2 x 210.2)
Weight in lbs (kg)	1.69 (0.768)	1.48 (0.670)	2.52 (1.147)	3.79 (1.721)

① The half-life of backlight is defined as original luminance being reduced by 50% when the maximum driving current is supplied to **HMi**. The life of LED backlight shown is an estimated value under 25°C normal temperature and humidity conditions.
② A total of 125K Bytes of memory is shared for History and Alarms.
③ USB Host port can provide up to 5V/500 mA of power. Supports USB memory devices and certain USB printers.
④ Use isolated power supply (not applicable for HMI08CE and HMI10CE).
⑤ The value of the power consumption indicates the electrical power consumed by **HMi** without peripheral devices. In order to ensure the normal operation, it is recommended to use a power supply which the capacity is 1.5 to 2 times the value of the power consumption.

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Table 35.2-13. HMIEC0806/HMIEC1612 I/O Expansion Modules

Description	Specification	Remark
Control method	Stored program, cyclic scan system	—
I/O processing method	Batch I/O (refresh)	Immediate refresh command available only with I/O of the MPU
Execution speed	Basic command (30 µs)	Application command (30 ~ hundreds µs)
Program language	Commands + ladder diagram + SFC	Step commands included
Program capacity	999 steps	Built-in EEPROM
Commands	Basic commands: 32 (including the STL commands)	Application commands: 59
Step relay (latched) General step point	 128 points	 S0 ~ S127
Auxiliary relay General Latched	 1024 points 256 points	 M0 ~ M511, M768 ~ M999, 744 points; M1000 ~ M1279, 280 points ① M512 ~ M767
Timer Digital	 64 points 63 points 1 point	 T0 ~ T63 (100 ms time base) T64 ~ T126 (10 ms time base) T127 (1 ms time base)
Counter General Latched 32 bit	 112 points 16 points 13 points	 C0 ~ C111 C112 ~ C127 C235, C236, C237, C238, C241, C242, C244, C246, C247, C249, C251, C252, C254 (all latched)
Data register General Latched	 408 points 192 points	 D0 ~ D407 D408 ~ D599
Pointer P	 64 points	 P0 ~ P63
Index register E/F	 2	 E, F
Constant Decimal K Hexadecimal H	 16 bit: –32768 ~ +32767 16 bit: 0000 ~ FFFF	 32 bit: –2147483648 ~ +2147483647 32 bit: 00000000 ~ FFFFFFFF
Self diagnosis/protection	I/O check, system execution timeout check, invalid command check, program check and password settings	
Monitor/debug	Program execution time display, bit/word, device settings	
Certifications	C-Tick, cULus, CE	

① M1000, M1001, M1002, M1003, M1020, M1021, M1022, M1067, M1068 and M1161 are the special auxiliary relays (special M).

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Table 35.2-13. HMIEC0806/HMIEC1612 I/O Expansion Modules (Continued)

Description	Specification	
	HMIEC0806	**HMIEC1612**
Power supply voltage	5 Vdc, 1A (supplied by **HMi**)	5 Vdc, 1A (supplied by **HMi**)
Power consumption	0.25W	0.5W
Noise immunity RS, CS, ESD, and EFT	Frequency: 80 MHz ~ 1 GHz, 1.4 GHz ~ 2.0 GHz, test level 10 V/m Frequency: 0.15 MHz ~ 80 MHz, test level 10V (**HMi** power port and I/O line) Air discharge ±8 kV	Frequency: 80 MHz ~ 1 GHz, 1.4 GHz ~ 2.0 GHz, test level 10 V/m Frequency: 0.15 MHz ~ 80 MHz, test level 10V (**HMi** power port and I/O line) Air discharge ±8 kV
Surge	±1.5 kV (**HMi** power port), ±1 kV (I/O line) ±2 kV (**HMi** power port)	±1.5 kV (**HMi** power port), ±1 kV (I/O line) ±2 kV (**HMi** power port)
Ambient temperature/humidity	Operation: 0°C to 50°C (temperature), 10 to 90% (humidity)	Operation: 0°C to 50°C (temperature), 10 to 90% (humidity)
	Storage: –40°C to 85°C (temperature), 10 to 90% (humidity)	Storage: –40°C to 85°C (temperature), 10 to 90% (humidity)
Vibration/shock	IEC 61131-2 Compliant 5 Hz ≤ f < 9 Hz = Continuous: 1.75 mm/Occasional: 3.5 mm 9 Hz ≤ f ≤ 150 Hz = Continuous: 0.5g/Occasional: 1.0g X, Y, Z directions for 10 times	IEC 61131-2 Compliant 5 Hz ≤ f < 9 Hz = Continuous: 1.75 mm/Occasional: 3.5 mm 9 Hz ≤ f ≤ 150 Hz = Continuous: 0.5g/Occasional: 1.0g X, Y, Z directions for 10 times
Weight	95.5g	116g
Input Point Electric Specifications		
Input type	DC (SINK or SOURCE)	DC (SINK or SOURCE)
Input voltage	24 Vdc (5 mA)	24 Vdc (5 mA)
Active level	Off → On, above 16 Vdc On → Off, below 14.4 Vdc	Off → On, above 16 Vdc On → Off, below 14.4 Vdc
Response time	Approx. 10 ms	Approx. 10 ms
Output Point Electric Specifications		
Output type	Relay-R	Relay-R
Current specifications	1.5A/1 point (5A/COM)	1.5A/1 point (5A/COM)
Voltage specifications	250 Vac, below 30 Vdc	250 Vac, below 30 Vdc
Maximum loading	75 VA (inductive), 90W (resistive)	75 VA (inductive), 90W (resistive)
Response time	Approx. 10 ms	Approx. 10 ms
Mechanical life	2–107 times (without load)	2–107 times (without load)
Electrical life	100,000 times (3A 250 Vac/30 Vdc) 6,000 times (5A 250 Vac/30 Vdc)	100,000 times (3A 250 Vac/30 Vdc) 6,000 times (5A 250 Vac/30 Vdc)

Table 35.2-14. HMIECENT Ethernet Expansion Module

Description	Specification
Power supply voltage	5 Vdc ±10%, 1A (provided by **HMi**)
Interfaced supported	RJ-45 with auto MDI/MDIX
Number of ports	1
Transmission method (standard conformance)	IEEE 802.3, IEEE 802.3u
Transmission cable	Category 5e (TIA/EIA-568-A, TIA/EIA-568-B)
Transmission speed	10/100 Mbps auto detection
Ethernet protocol	ICMP, IP, TCP, UDP, DHCP, Modbus TCP
Noise immunity	ESD (IEC 61131-2, IEC 61000-4-2): 8 kV air discharge EFT (IEC 61131-2, IEC 61000-4-4): Power line: 2 kV, Communication I/O: 1 kV Damped-oscillatory wave: Power line: 1 kV, digital I/O: 1 kV RS (IEC 61131-2, IEC 61000-4-3): 26 MHz ~ 1 GHz, 10V/m
Certifications	C-Tick, cULus, CE

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Dimensions—Approximate Dimensions in Inches (mm)

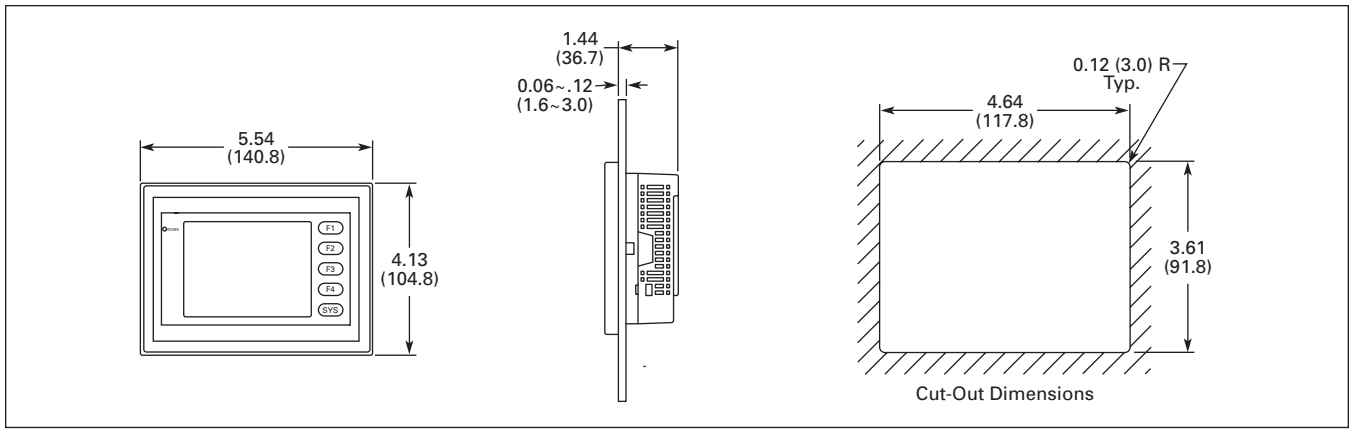

Figure 35.2-3. HMI04

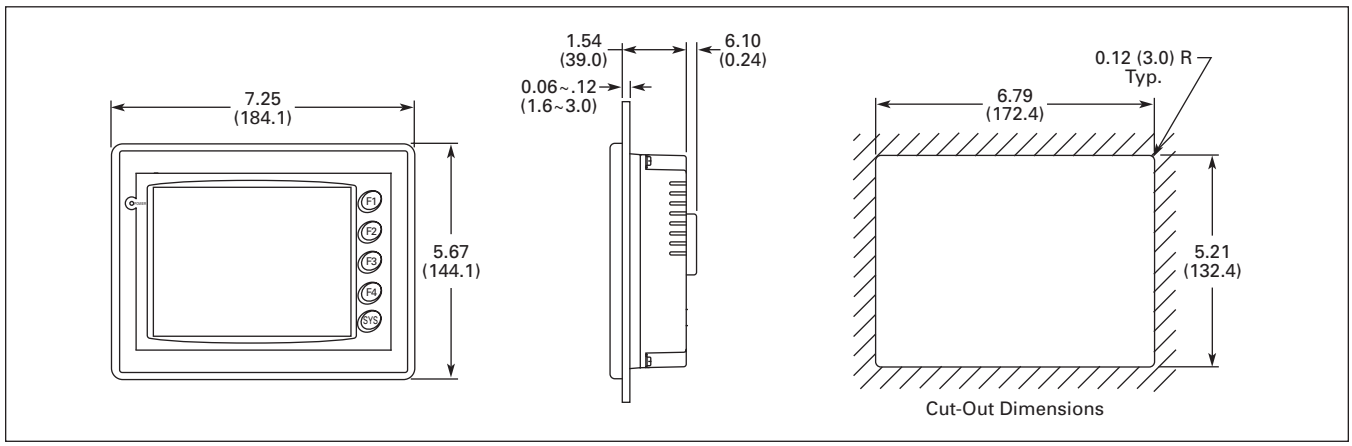

Figure 35.2-4. HMI06 ①

① HMI06CU does not have function buttons.

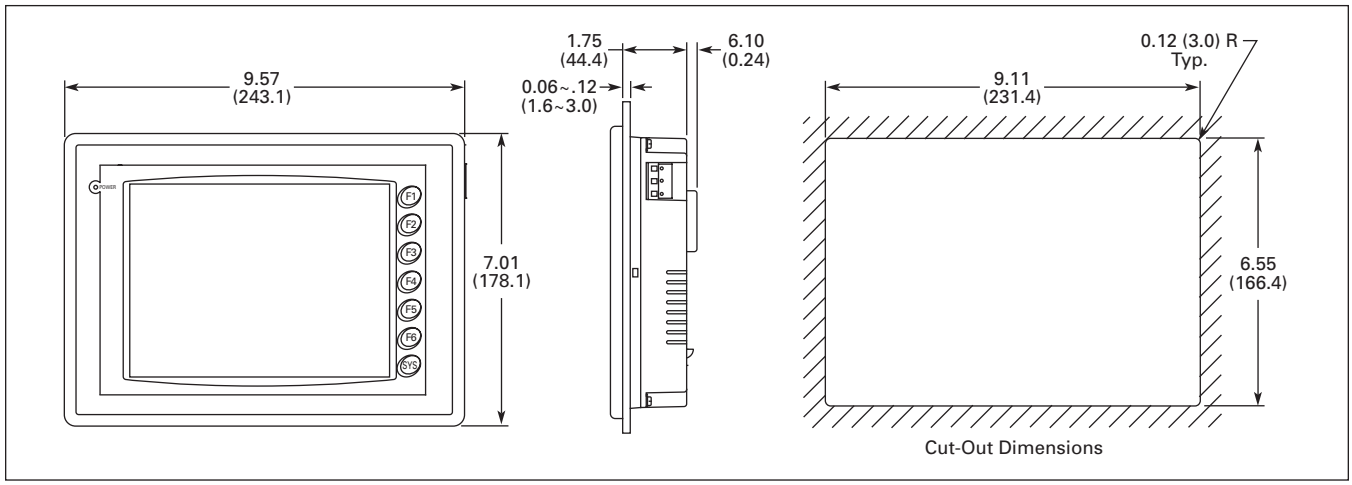

Figure 35.2-5. HMI08CE

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Dimensions—Approximate Dimensions in Inches (mm)

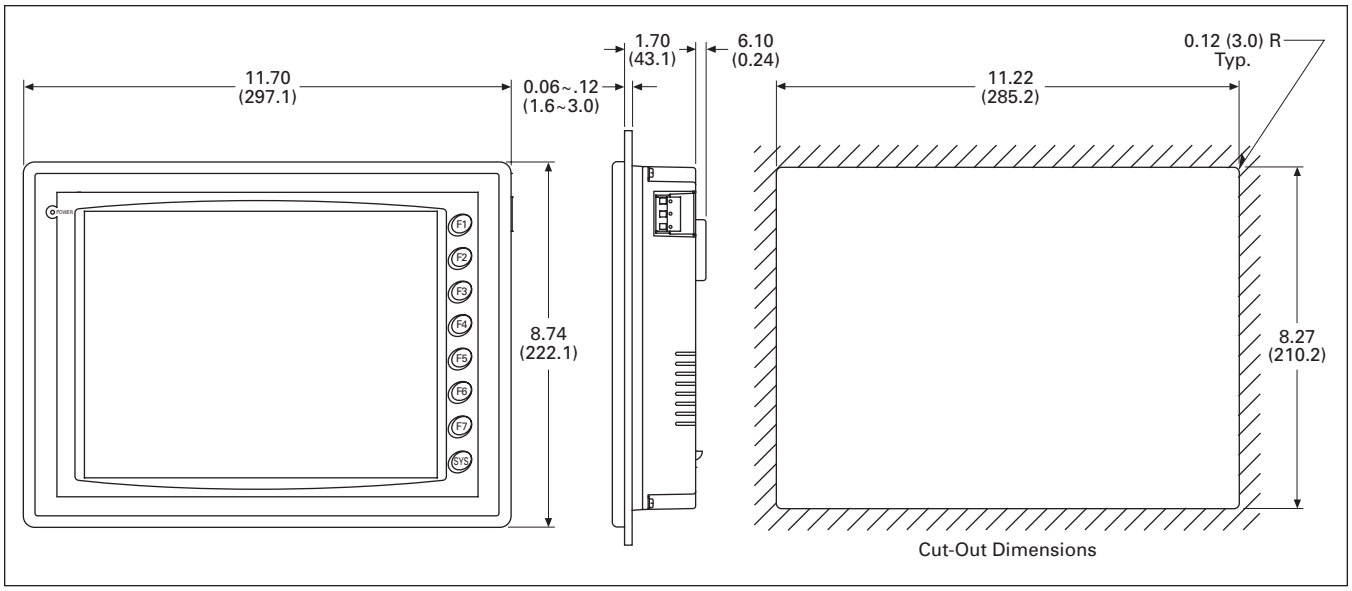

Figure 35.2-6. HMI10CE

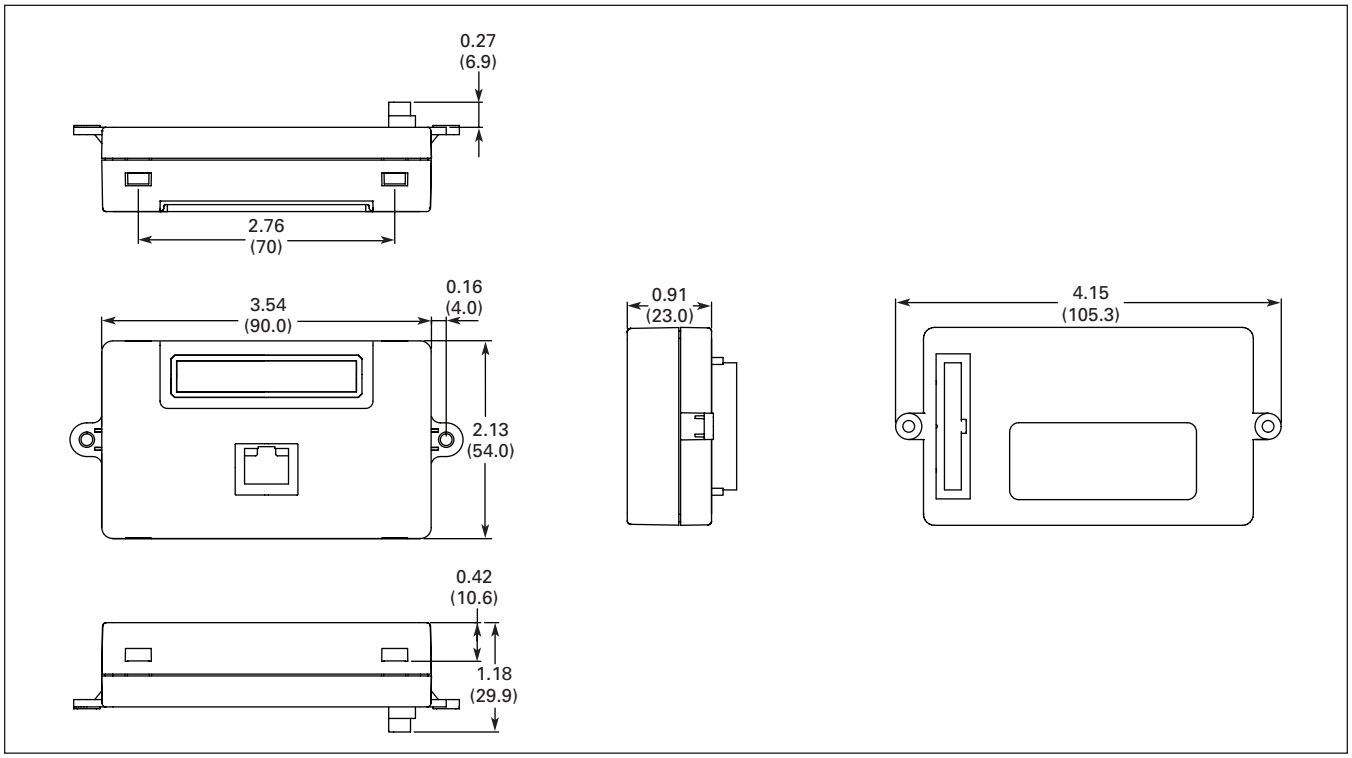

Figure 35.2-7. HMIECENT Ethernet Expansion Module

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Dimensions—Approximate Dimensions in Inches (mm)

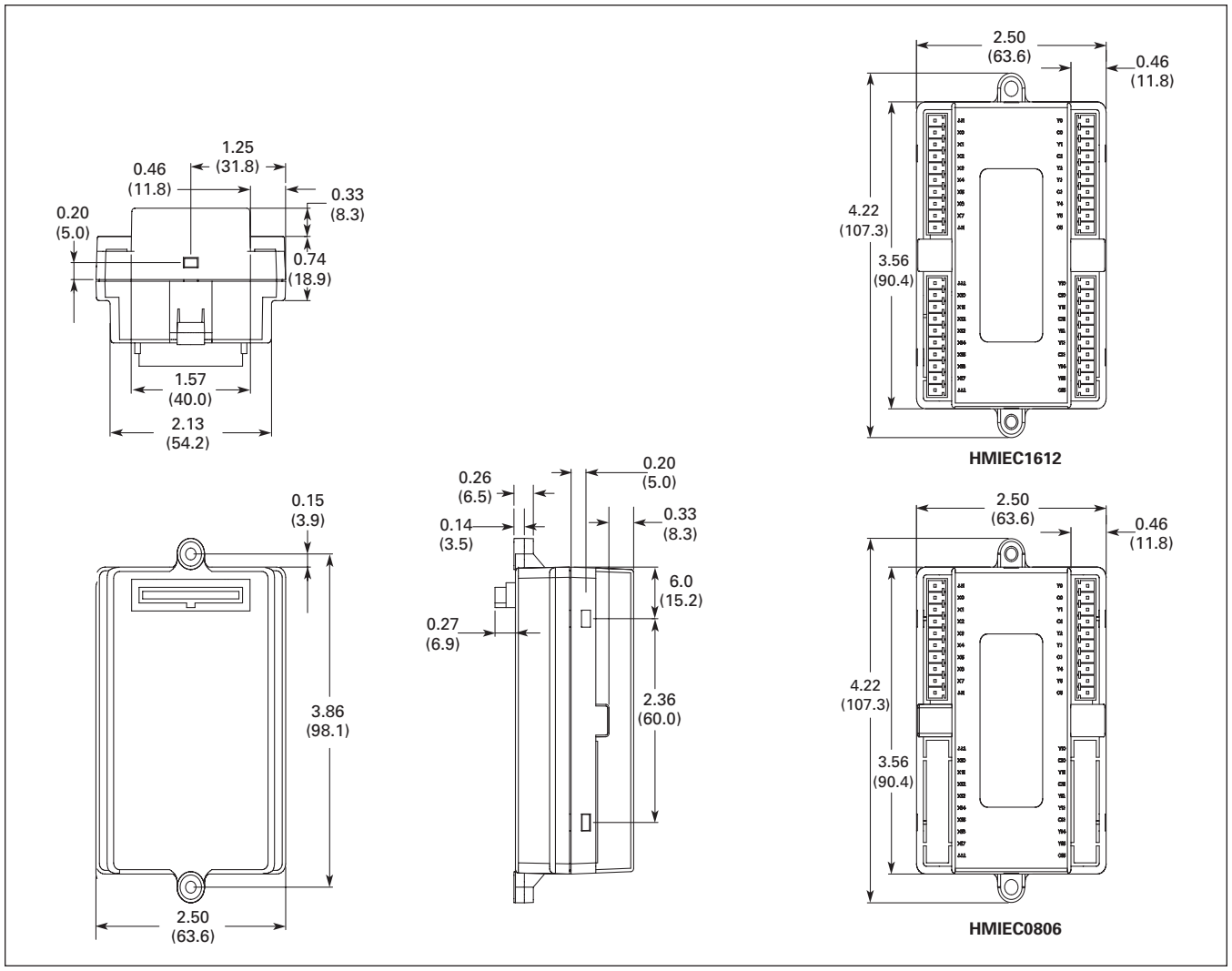

Figure 35.2-8. HMIEC0806 and HMIEC1612 I/O Expansion Modules

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XV and XP Operator Interface with Visual Designer

XV and XP Operator Interface with Visual Designer

General Description

The XV and XP Series, along with Visual Designer software, completes Eaton's strong portfolio of operator interfaces and logic control products. Along with a broad selection of industrial control components, Eaton is a single-source supplier for automation and control products.

The XV and XP Series of operator interfaces represent the broadest set of solutions Eaton has introduced in more than 25 years of HMI innovation. This family of high-performance platforms provides unmatched flexibility, with a slim OEM design and a variety of communication port options that include onboard Ethernet on all models. With screen sizes ranging from 3.5 to 15 inches, vast communications capabilities and a single development software package, the XV and XP Series represent a complete solution to any HMI application.

Visual Designer—A Single Software Solution

At the heart of any good operator interface system is a powerful and intuitive software package. For this reason, Eaton introduces Visual Designer. When coupled with this new software package, XV and XP Series operator interfaces can communicate with virtually any network, any PLC, any Web client, and any database. Development is simplified by the ability to seamlessly scale a single application across all XV and XP Series models. The Visual Designer runtime and Web server licenses are pre-installed on all XV and XP Series units, eliminating the hassle and cost of purchasing and installing separately.

Features and Benefits

Fully Connected, Web-enabled

Today's operator interface applications range from basic monitor and control to high-end, feature-rich HMI software with Supervisory Control and Data Acquisition (SCADA). Customers demand communications capability with any network, PLC, Web client and database. The answer: Eaton's Web-enabled Visual Designer operator interface software.

Web-Based Thin Client

- Zero admin client—no need to install software on the remote PC. Any standard Web browser will do
- Supports multiple simultaneous and independent Web clients
- Simplified security—the same local user accounts and passwords for viewing and control also apply remotely

Connectivity

- Extensive list of over 240 native communication drivers for PLCs, drives, and many other industrial and commercial devices
- Interface to any relational database—access both local and enterprise functions such as MRP/ERP through databases such as Microsoft® Access, Fox Pro, SQL Server, Oracle®, PI System® and many others
- Other connectivity tools provide redundancy capabilities, Real-Time Data Exchange, Centralized Alarm Management and more

Open Platform

- Visual Designer Software can host third party ActiveX® and .NET controls and Visual Basic® programs
- In addition to Eaton's Operator Interface families, Visual Designer's runtime may be licensed on any 32 or 64-bit Windows PC

Interoperability

- Software is designed to open standards such as XML, OPC, ActiveX, .NET, ODBC, ADO, SOAP and more
- Seamless integration with third party hardware, software and databases

Peace of Mind

All of these capabilities—combined with Eaton's commitment to provide free technical support for both OI hardware and software—make it quick and easy to purchase, develop and deploy XV and XP operator interface solutions.

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Product Selection

Table 35.3-1. XV and XP Operator Interface with Visual Designer

Series	XV Operator Interface		XP Operator Interface	
Model	**XV-102**	**XV-152**	**XP-702**	
Screen Size (inches)	**3.5, 5.7, 7.0**	**5.7, 8.4, 10.4**	**8.4, 10.4, 12.1, 15.0**	**Blind Node (no display)**
Housing material	Plastic	Metal	Metal	
Operating system	WinCE 5.0 Professional		Windows XPe	
Touchscreen technology	Resistive		Infrared, non-reflective safety glass	N/A
Communication ports	One Ethernet, one or two serial, 0 or one USB		Two Ethernet, two serial, four USB	
Development software	Visual Designer (VISUALDCE or VISUALDXP)		Visual Designer (VISUALDXP)	
Pre-licensed tags, drivers, Web sessions	1500 tags, three drivers, one Web session		Standard models 4000 tags, five drivers, one Web session Enterprise models 64,000 tags, eight drivers, one Web session	
Field-upgradeable maximum tags, drivers, Web sessions	4000 tags, three drivers, one, two, four or eight Web sessions simultaneously		64,000 tags, eight drivers, one, two, four, eight, 16, 32, 64, 128 or 256 Web sessions simultaneously	
Alarm online/history	Yes		Yes	
Trend online/history	Yes		Yes	
VB scripting	Yes		Yes	
Scheduler	Yes		Yes	
Recipe	Yes		Yes	
Reports	Yes		Yes	
OPC, TCP/IP and communication drivers	Yes		Yes	
Web Server and Web Thin Client support	Yes		Yes	
Full remote access—FTP server and remote desktop functionality	Yes		Yes	
Local/remote database interface (ADO Gateway) to SQL, Access, ODBC (on XP platforms only) and more	Yes		Yes	
Ability to run third-party software	No		Yes	
ActiveX and .NET controls	No		Yes	
Full document viewing	No		Yes	
Windows media player	No		Yes	
Vision system interfaces	No		Yes	
Network camera monitoring	No		Yes	

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XV Operator Interface

XV Operator Interface

General Description

Positioned between the **HMi** and the XP series of operator interface, the XV series is ideal for applications requiring extensive connectivity and the advanced features available in Visual Designer without the expense associated with more powerful open platforms.

The XV models were designed with OEMs in mind featuring an attractive bezel and slim and lightweight housing. The clip-mount design simplifies installation.

Features

XV Series operator interface with Windows CE operating system

- 3.5, 5.7, 7.0 (widescreen), 8.4 and 10.4-inch screen sizes
- Cost-effective plastic or metal housing
- Resistive touch with flush bezel
- Ethernet and serial ports on all models
- Visual Designer XP or CE development software
- Pre-installed Visual Designer runtime and Web serving licenses

Standards and Certifications

- CE
- UL
- cUL
- RoHS

Product Selection

Series Information

All XV models have a Microsoft® Windows CE operating system and are pre-licensed with Visual Designer runtime for up to 1500 tags, three simultaneous communication drivers and one Web session. Field upgrades are available for up to 4000 tags, three drivers, and two, four or eight simultaneous Web sessions.

XV Operator Interface

Table 35.3-2. XV Operator Interface

Description	Catalog Number
XV 3.5-inch TFT, plastic housing, resistive touch, Ethernet and RS-232	**XV-102-B4-35TQRG-10**
XV 3.5-inch TFT, plastic housing, resistive touch, Ethernet and RS-485	**XV-102-B3-35TQRG-10**
XV 5.7-inch TFT, plastic housing, resistive touch, Ethernet, RS-232, RS-485	**XV-102-D4-57TVRG-10**
XV 7.0-inch TFT wide screen, plastic housing, resistive touch, Ethernet, RS-232, RS-485	**XV-102-D4-70TWRG-10**
XV 5.7-inch TFT, metal housing, resistive touch, Ethernet, RS-232, RS-485	**XV-152-D4-57TVRG-10**
XV 8.4-inch TFT, metal housing, resistive touch, Ethernet, RS-232, RS-485	**XV-152-D4-84TVRG-10**
XV 10.4-inch TFT, metal housing, resistive touch, Ethernet, RS-232, RS-485	**XV-152-D4-10TVRG-10**

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Technical Data and Specifications

Table 35.3-3. XV Operator Interface

Series	XV Midrange Operator Interface					
Model	**XV-102**			**XV-152**		
Screen Size	**3.5 Inch**	**5.7 Inch**	**7.0 Inch**	**5.7 Inch**	**8.4 Inch**	**10.4 Inch**
Operating system	WinCE 5.0 Professional	WinCE 5.0 Professional	WinCE 5.0 Professional	WinCE 5.0 Professional	WinCE 5.0 Professional	WinCE 5.0 Professional
Touchscreen technology	Resistive	Resistive	Resistive	Resistive	Resistive	Resistive
Display, colors	Color TFT, 64k colors	Color TFT, 64k colors	Color TFT, 64k colors	Color TFT, 64k colors	Color TFT, 64k colors	Color TFT, 64k colors
Pixel resolution (landscape) portrait mode also available	QVGA 320 x 240	VGA 640 x 480	WVGA 800 x 480	VGA 640 x 480	VGA 640 x 480	VGA 640 x 480
Brightness (cd/m^2)	250	250	250	350	350	350
Backlight	LED, selectable dimming	LED, selectable dimming	LED, selectable dimming	LED, selectable dimming	LED, selectable dimming	LED, selectable dimming
Lifespan of backlight (half-life)	40,000 hrs	40,000 hrs	40,000 hrs	40,000 hrs	40,000 hrs	40,000 hrs
Processor	32 bit RISC, 400 MHz	32 bit RISC, 400 MHz	32 bit RISC, 400 MHz	32 bit RISC, 400 MHz	32 bit RISC, 400 MHz	32 bit RISC, 400 MHz
Volatile memory	64 MB DRAM	64 MB DRAM	64 MB DRAM	64 MB DRAM	64 MB DRAM	64 MB DRAM
Non-volatile memory	125 KB NVRAM/ 64 MB NAND, 1 SD card slot	125 KB NVRAM/64 MB NAND/ 2 MB NOR, 1 SD card slot		125 KB NVRAM/64 MB NAND/ 2 MB NOR, 1 SD card slot		
Real-time clock	Yes	Yes	Yes	Yes	Yes	Yes
Communication ports	Ethernet 10/100, RS-485 or RS-232 USB device	Ethernet 10/100, RS-485, RS-232 USB host, USB device		Ethernet 10/100, RS-485, RS-232 USB host, USB device		
Slots for COMM modules	None	None	None	None	None	None
Power supply rated voltage	24 Vdc nominal (–20%/+25%) with polarity protection			24 Vdc nominal (–20%/+25%) with polarity protection		
Continuous current consumption (max. amps)	0.2	0.4	0.4	0.4	0.6	0.6
Starting current inrush (A^2s)	1.5	1.5	1.5	1.5	1.5	1.5
Ambient conditions						
Operation—relative humidity, noncondensing	0° to 50°C, 10 to 95%	0° to 50°C, 10 to 95%	0° to 50°C, 10 to 95%	0° to 50°C, 10 to 95%	0° to 50°C, 10 to 95%	0° to 50°C, 10 to 95%
Storage/transport—relative humidity, noncondensing	–20° to 60°C, 10 to 95%	–20° to 60°C, 10 to 95%	–20° to 60°C, 10 to 95%	–20° to 60°C, 10 to 95%	–20° to 60°C, 10 to 95%	–20° to 60°C, 10 to 95%
Shock	IEC 60068-2-27 15g for 11 ms duration			IEC 60068-2-27 15g for 11 ms duration		
Vibration	IEC 60068-2-6 5–9 Hz: 3.5 mm displacement 9–60 Hz: 0.15 mm displacement 60–150 Hz: 2g acceleration			IEC 60068-2-6 5–9 Hz: 3.5 mm displacement 9–60 Hz: 0.15 mm displacement 60–150 Hz: 2g acceleration		
Agency certifications and standards	CE, UL/cUL, CSA (pending), RoHS			CE, UL/cUL, CSA (pending), RoHS		
Protection type						
Front	IP65, NEMA 4X (indoor)	IP65, NEMA 4X (indoor)	IP65, NEMA 4X (indoor)	IP65, NEMA 4X (indoor)	IP65, NEMA 4X (indoor)	IP65, NEMA 4X (indoor)
Rear	IP20, NEMA 1	IP20, NEMA 1	IP20, NEMA 1	IP20, NEMA 1	IP20, NEMA 1	IP20, NEMA 1
Housing material	Plastic	Plastic	Plastic	Metal	Metal	Metal
Dimensions W x H x D (mm)	136 x 100 x 30	170 x 130 x 39	210 x 135 x 38	212 x 156 x 53	275 x 208 x 53	345 x 260 x 54
Mounting cutout W x H (mm)	123 x 87	157 x 117	197 x 122	198 x 142	261 x 194	329 x 238
Approximate weight lbs (kg)	0.7 (0.3)	1.3 (0.6)	1.3 (0.6)	2.9 (1.3)	4.3 (2.1)	6.1 (3.0)
Development software	Visual Designer (VISUALDCE or VISUALDXP)			Visual Designer (VISUALDCE or VISUALDXP)		
Ability to run third-party software	No	No	No	No	No	No
Pre-licensed tags, drivers, Web sessions	1500 tags, three drivers, one Web session			1500 tags, three drivers, one Web session		
Field upgradeable maximum tags, drivers, Web sessions	4000 tags, three drivers, one, two, four or eight Web sessions simultaneously			4000 tags, three drivers, one, two, four or eight Web sessions simultaneously		

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XP Operator Interface

XV Operator Interface

General Description

The XP models were designed for performance. This series is perfect for OEMs who require extensive connectivity, the advanced features available in Visual Designer, have large or high-speed applications, or need an open platform for running third-party software. The unique infrared touch-screen with scratch-resistant safety glass is ideal for harsh environments where traditional touchscreens are easily damaged. The two externally accessible solid-state CompactFlash® drives provide both easy access and reliability. Protect Mode™, available only on Eaton's XP embedded operator interface products, protects the operating system from unwanted changes providing improved uptime and reliability.

Features

XP Series operator interface with Windows XP embedded operating system

- 8.4, 10.4, 12.1 and 15.0-inch screen sizes as well as blind node
- Infrared touch screen, safety glass and metal housing for demanding environments
- Multiple Ethernet, serial and USB ports on all models
- All solid-state media increases reliability
- Open architecture compatible with third-party software and hardware
- Non-corruptible OS with Protect Mode increases security and minimizes emergency and preventative maintenance downtime
- Visual Designer XP development software
- Pre-installed Visual Designer runtime and Web serving licenses

Standards and Certifications

- CE
- UL
- cUL
- RoHS

Product Selection

Series Information

All XP models have a Microsoft Windows XP embedded operating system and are pre-licensed with Visual Designer runtime. The standard models are licensed for 4000 tags, five simultaneous communication drivers and one Web session. The enterprise models are licensed for 64,000 tags, eight simultaneous communication drivers and one Web session. Field upgrades are available for up to 64,000 tags, eight drivers, and two, four, eight, 16, 32, 64, 128 or 256 simultaneous Web sessions.

XP Operator Interface

Table 35.3-4. XP Operator Interface

Description	Catalog Number
XP 8.4-inch TFT, 1 GHz Celeron, 1 GB RAM, 2 GB C drive, 1 GB D drive, 4000 tags, five drivers, one Web session	**XP-702-E0-84TSIJ-10**
XP 10.4-inch TFT, 1 GHz Celeron, 1 GB RAM, 2 GB C drive, 1 GB D drive, 4000 tags, five drivers, one Web session	**XP-702-E0-10TSIJ-10**
XP 12.1-inch TFT, 1 GHz Celeron, 1 GB RAM, 2 GB C drive, 1 GB D drive, 4000 tags, five drivers, one Web session	**XP-702-E0-12TXIJ-10**
XP 15.0-inch TFT, 1 GHz Celeron, 1 GB RAM, 2 GB C drive, 1 GB D drive, 4000 tags, five drivers, one Web session	**XP-702-E0-15TXIJ-10**
XP blind node (no display), 1 GHz Celeron, 1 GB RAM, 2 GB C drive, 1 GB D drive, 4000 tags, five drivers, one Web session	**XP-702-E0-BOXJ-10**
XP 8.4-inch TFT, 1.8 GHz Pentium, 2 GB RAM, 4 GB C drive, 1 GB D drive, 64k tags, eight drivers, one Web session	**XP-702-F0-84TSIK-10**
XP 10.4-inch TFT, 1.8 GHz Pentium, 2 GB RAM, 4 GB C drive, 1 GB D drive, 64k tags, eight drivers, one Web session	**XP-702-F0-10TSIK-10**
XP 12.1-inch TFT, 1.8 GHz Pentium, 2 GB RAM, 4 GB C drive, 1 GB D drive, 64k tags, eight drivers, one Web session	**XP-702-F0-12TXIK-10**
XP 15.0-inch TFT, 1.8 GHz Pentium, 2 GB RAM, 4 GB C drive, 1 GB D drive, 64k tags, eight drivers, one Web session	**XP-702-F0-15TXIK-10**
XP blind node (no display), 1.8 GHz Pentium, 2 GB RAM, 4 GB C drive, 1 GB D drive, 64k tags, eight drivers, one Web session	**XP-702-F0-BOXK-10**

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Technical Data and Specifications

Table 35.3-5. XP Operator Interface

Series	XP Performance Operator Interface				
Model	**XP-702**				
Screen Size	**8.4 Inch**	**10.4 Inch**	**12.1 Inch**	**15.0 Inch**	**Blind Node (no display)**
Operating system	Windows XPe	Windows XPe	Windows XPe	Windows XPe	Windows XPe
Touchscreen technology	Infrared, non-reflective safety glass				N/A
Display, colors	Color TFT, selectable 16 million, 64k or 256 colors				VGA and DVI-D output
Pixel resolution (landscape)—Portrait mode also available	SVGA 800 x 600	SVGA 800 x 600	XGA 1024 x 768	XGA 1024 x 768	800 x 600 to 1920 x 1200
Brightness (cd/m^2)	400	400	400	400	N/A
Backlight	2 CCFL	2 CCFL	2 CCFL	4 CCFL	N/A
Lifespan of backlight (half-life)	50,000 hrs	50,000 hrs	50,000 hrs	50,000 hrs	N/A
Processor Standard models Enterprise models	 1 GHz Celeron M 1.8 GHz Pentium M	 1 GHz Celeron M 1.8 GHz Pentium M	 1 GHz Celeron M 1.8 GHz Pentium M	 1 GHz Celeron M 1.8 GHz Pentium M	 1 GHz Celeron M 1.8 GHz Pentium M
Volatile memory Standard models Enterprise models	 1 GB 2 GB	 1 GB 2 GB	 1 GB 2 GB	 1 GB 2 GB	 1 GB 2 GB
Non-volatile memory Standard models Enterprise models	 2 GB minimum C drive (OS), 1 GB minimum D drive 4 GB minimum C drive (OS), 1 GB minimum D drive				
Real-time clock	Yes	Yes	Yes	Yes	Yes
Communication ports	Ethernet 1 x 10/100 and 1 x 10/100/1000 2 x RS232 with 1 x RS-485 adapter 4 x USB 2.0 Host				
Slots for COMM modules	1 x PCI 32-bit	1 x PCI 32-bit	1 x PCI 32-bit	1 x PCI 32-bit	1 x PCI 32-bit
Power supply rated voltage	24 Vdc nominal (–15%/+20%) with polarity protection				
Continuous current consumption (maximum amperes) Standard models Enterprise models	 2.0 3.1	 2.0 3.1	 2.1 3.2	 2.1 3.2	 1.4 2.8
Starting current inrush (A^{2}s)	2.0	2.0	2.0	2.0	2.0
Ambient conditions Operation—relative humidity, noncondensing Storage/transport—relative humidity, noncondensing	 0° to 50°C, 10 to 95% –20° to 60°C, 10 to 95%	 0° to 50°C, 10 to 95% –20° to 60°C, 10 to 95%	 0° to 50°C, 10 to 95% –20° to 60°C, 10 to 95%	 0° to 50°C, 10 to 95% –20° to 60°C, 10 to 95%	 0° to 50°C, 10 to 95% –20° to 60°C, 10 to 95%
Shock	IEC 60068-2-27 15g for 11 ms duration				
Vibration 5–9 Hz 9–60 Hz 60–150 Hz	IEC 60068-2-6 3.5 mm displacement 0.15 mm displacement 1g acceleration	IEC 60068-2-6 3.5 mm displacement 0.15 mm displacement 1g acceleration	IEC 60068-2-6 3.5 mm displacement 0.15 mm displacement 1g acceleration	IEC 60068-2-6 3.5 mm displacement 0.15 mm displacement 1g acceleration	IEC 60068-2-6 3.5 mm displacement 0.15 mm displacement 1g acceleration
Agency certifications and standards	CE, UL/cUL, CSA (pending), RoHS				
Protection type Front Rear	 IP65, NEMA 4X (indoor) IP20, NEMA 1	 IP65, NEMA 4X (indoor) IP20, NEMA 1	 IP65, NEMA 4X (indoor) IP20, NEMA 1	 IP65, NEMA 4X (indoor) IP20, NEMA 1	 IP20, NEMA 1 IP20, NEMA 1
Housing material	Metal	Metal	Metal	Metal	Metal
Dimensions W x H x D (mm)	275 x 208 x 102/140	345 x 260 x 91/129	361 x 279 x 98/136	427 x 322 x 101/139	264 x 194 x 58/96
Mounting cutout W x H (mm)	261 x 194	329 x 238	344 x 262	410 x 315	N/A
Approx. weight, lbs (kg)	6.4/7.3 (3.2/3.6)	8.3/9.1 (4.1/4.5)	9.5/10.3 (4.7/5.1)	12.8/13.6 (6.3/6.7)	3.9/4.7 (1.9/2.3)
Development software	Visual Designer (VISUALDXP)	Visual Designer (VISUALDXP)	Visual Designer (VISUALDXP)	Visual Designer (VISUALDXP)	Visual Designer (VISUALDXP)
Ability to run third-party software	Yes	Yes	Yes	Yes	Yes
Pre-licensed tags, drivers, Web sessions Standard models Enterprise models	 4000 tags, five drivers, one Web session 64,000 tags, eight drivers, one Web session				
Field upgradeable maximum tags, drivers, Web sessions	64,000 tags, eight drivers, one, two, four, eight, 16, 32, 64, 128 or 256 Web sessions simultaneously				

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Visual Designer Software

Visual Designer Software

General Description

Advanced GUI Development, Made Easy

Time-saving solutions, lower costs. With application development expense often outweighing the hardware expense, the demand to quickly design and implement advanced GUI solutions is greater than ever. Even advanced features such as data archiving, recipe management, multi-language, SQL database access and Web serving are made easy through an elegant and modern user interface. Visual Designer's ease-of-use and time-saving features lower your total installed cost.

Features

Visual Designer is a software development package optimized for OEMs. New tools streamline the application development process, and the creation of Web-based applications has never been easier. In addition to basic monitor and control functionality, Visual Designer is packed with advanced features streamlining the design of sophisticated applications.

Advanced Features

- Pop-ups and group screens
- Full mathematical and logical evaluation
- Web browsing and document viewing
- Remote access and control without having to install software to the remote PC
- Database interfacing
- Historical alarms and events
- Historical data archiving and trending
- Recipe management
- Multi-language
- VB scripting
- Report generation
- Scheduling
- Resolution conversion
- E-mailing and text messaging
- Launch and control of third-party applications

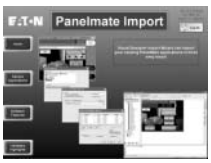
Advanced Development Features

- Conversion of legacy PanelMate configurations
- Optional PanelBuilder™ conversion utility
- Online configuration/editing
- Advanced search and replace
- Automatic scaling of Web clients
- Customizable application symbols
- Reusable controls, images and screens via indirect tag and/or PLC assignments

Product Selection

Table 35.3-6. Visual Designer Software

Description	Catalog Number
Visual Designer Development Software License Key	
For CE hardware For PCs, XPe and CE hardware For CE hardware, five-pack of VISUALDCE	**VISUALDCE** **VISUALDXP** **VISUALDCE5**
For PCs, XPe and CE hardware, five-pack of VISUALDXP For a PC Runtime software license with a maximum of 64k tags, eight drivers, one Web session Visual Designer development software and PC runtime software licenses for a maximum of 64k tags, eight drivers, one Web session	**VISUALDXP5** **VISUALRTPC** **VISUALRTDEVPC**
Software Updates and Upgrades	
Update to current version Visual Designer development software for CE hardware Update to current version Visual Designer development software PCs/XPe/CE Update to current version of Visual Designer runtime license for PCs	**VISUALDUPCE** **VISUALDUPXP** **VISUALRTUPPC**
Upgrade from Visual Designer CE 1500 tag to 4000 tag runtime Upgrade from Visual Designer XPe 4000 tag, five driver to 64k tag, eight driver runtime license Upgrade from Visual Designer development software CE to CE plus PC and XPe (64k tag, eight drivers)	**VISUALRT4KCE** **VISUALRT64KXP** **VISUALDCE2XP**
Visual Designer PanelBuilder conversion utility optional plug-in (requires Visual Designer software) Visual Designer one additional Web thin client license for Internet Explorer Visual Designer three additional Web thin client licenses for Internet Explorer Visual Designer seven additional Web thin client licenses for Internet Explorer	**VISUALDPBCU** **VISUALWEB1** **VISUALWEB3** **VISUALWEB7**



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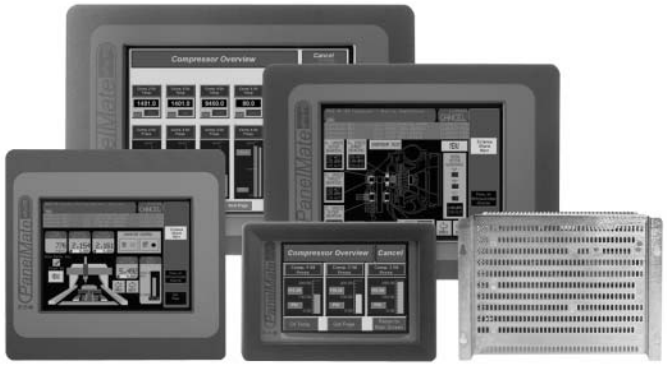
PanelMate Operator Interface



PanelMate Operator Interface

General Description

Machine builders and manufacturing system designers increasingly recognize the benefits of using electronic operator interface devices to replace pushbuttons, lights, gauges and other traditional hardwired devices.

Most choose dedicated operator interface systems because they are easy to use, fully integrated and cost-effective.

Application Description

PanelMate units are flexible, expandable, cost-effective alternatives to traditional operator control panels. A single PanelMate unit easily replaces panels that once contained numerous pushbuttons, indicator lights, thumbwheels, message displays and alarm annunciators.

Features and Benefits

- Replaces conventional control panels at less than half the cost
- Gives operators more information for better control decisions
- Standardizes operator stations and minimizes operator training
- Saves processor memory by using Boolean logic and math functions
- Reduces hardwiring costs and minimizes installation time
- Adds advanced capabilities such as machine diagnostics, troubleshooting, trending and alarms at no additional cost
- Automates documentation
- Meets tight panel space requirements

Product Selection

PanelMate System Components

Each PanelMate system requires component selection from three major categories:

- Operator interface—the online unit or operator station
- Configuration software—PC-based software, used to configure and transfer applications to and from the operator interface
- Connectivity—includes optional cables, hardware interfaces and software utilities

Selection Criteria

- First, select the most appropriate operator interface, display type and size, and operator input options for the customer's application
  - The selection of the operator interface model line is driven by such considerations as the size and complexity of the operator interface application and performance requirements, as well as the economic factors of the overall control system
  - The display type is chosen based on application complexity and the operator's proximity to the operator interface
  - Operator input options include either touchpanel (keypad) or touchscreen operator interface models. Criteria for selection of the best input method include environmental factors (airborne particles, grease and the like), and application design (numeric input, one-touch control and so on)
- Second, select the appropriate configuration editing software for the chosen Operator Interface

Note: If the customer already has configuration software, they may only need a software upgrade.

- Finally, select required connectivity features, such as interface cables, optional high-speed interface cards, and, for some Allen-Bradley drivers, licensing enabler utilities
- Eaton's interface cables are ideal for system and application testing. For actual plant floor applications, custom cables are generally required to meet the customer's requirements for length, environment, termination and so on

Note: In order to specify the proper cabling and other connectivity options, you must know the target PLC or controller to be used with the operator interface. Required information may include the PLC brand, model number, software/firmware revision level and hardware/software interface type.

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Product Selection

Table 35.4-1. PanelMate Operator Interface Models

Family	Series	Display	TS ①	KP ①	SST	OD	Classic	EE	Ethernet	Power Pro SW	Canvas SW
ePro PS	7685T-8	8.4-inch color TFT	■			■	■	■	■	■ ②	■
	7685T-10	10.4-inch color TFT	■		■		■	■	■	■ ②	■
	7685T-12	12.1-inch color TFT	■		■	■	■	■	■	■ ②	■
	7685T-15	15.0-inch color TFT	■		■	■	■	■	■	■ ②	■
	7600	Display with TS or other input device purchased separately					■	■	■	■ ②	■
PP	1155	7.4-inch grayscale LCD	■	■						■	
	1175	7.7-inch color DSTN	■	■						■	
	1755	7.4-inch grayscale LCD	■	■						■	
	1785	7.7-inch color DSTN	■	■						■	
	1775	8.4-inch color TFT	■	■						■	
	3985	10.4-inch color TFT	■	■	■					■	
	5485	10.4-inch color TFT		■ ③	■					■	
	5785	10.4-inch color TFT	■	■	■					■	

① TS and KP options are mutually exclusive.
② Classic model required.
③ Split architecture.

Glossary

Classic—Support PanelMate Power Pro and Canvas applications

EE—Enterprise Edition (extended capabilities)

ePro—PanelMate ePro Series

ePro PS—PanelMate ePro PS (Performance Series)

KP—Keypad (Touchpanel)

OD—Outdoor Series

PP—PanelMate Power Pro Series

SST—Stainless Steel Front Panel Option

TS—Touchscreen

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ePro PS

ePro PS

General Description

The PanelMate ePro PS family is made up of high performance, yet cost-effective, operator interface products. The ePro PS family carries on the PanelMate tradition of performance in balance with ease of use. The ePro PS family sets the standard for hybrid OI systems by combining the flexibility of Microsoft Windows XP embedded operating system with the stability and reliability achieved through the solid-state hardware design and exclusive Protect Mode that provides protection for the operating system and software.

The ePro PS family provides the performance and flexibility of PC-based operator interfaces without the associated complexity of a PC on the plant floor. With integrated high-speed Ethernet, serial ports, USB ports, removable CompactFlash and PCMCIA, the ePro PS models can be adapted for a wide variety of user requirements.

The ePro PS family of products are configured with Canvas editing software. Specific ePro PS Enterprise Edition models are pre-licensed to run Eaton's Visual Designer editing software. Both editors support a modern suite of graphical templates for replacing hardwired panel devices such as pushbuttons, indicator lights, bars, readouts, message displays and more.

The PanelMate ePro PS family of products includes:

- PanelMate ePro PS
- PanelMate ePro PS OD (Outdoor Series)
- PanelMate ePro PS EE (Enterprise Edition)
- PanelMate ePro PS Classic

PanelMate ePro PS OD

The PanelMate ePro PS OD (Outdoor Series) operator interface is designed for use in outdoor applications. The OD models offer increased visibility in high ambient light, broad temperature specifications and UV resistance.

PanelMate ePro PS EE

The PanelMate ePro PS EE (Enterprise Edition) operator interface is designed for end users that need more system memory, more data storage or additional Windows XP embedded components and services to support large Canvas applications or third-party software.

PanelMate ePro PS Classic

The PanelMate ePro PS Classic operator interface is designed for use by end users that are currently using the PanelMate Power Pro software and are ready for the new PanelMate ePro PS hardware, but are not quite ready to convert their PanelMate Power Pro configurations to Canvas applications. Because the PanelMate ePro PS Classic OI supports Power Pro and Canvas Runtime software, the user can use the Canvas Runtime software if and when they are ready.

The ePro PS Classic OI is based on the PanelMate ePro PS hardware models with the addition of software and licenses that allow users to run the PanelMate Power Pro Runtime software. One difference is in the area of drivers: the ePro PS Classic OI running PanelMate Power Pro configurations does not support native (non-OPC) communication drivers, but does support up to three OPC drivers simultaneously.

Application Description

Whether replacing hard-wired pilot devices and pushbuttons or providing machine control and even SCADA functions, the ePro PS family of products will fit from both a form and functional standpoint. In monitoring and diagnostic applications, as well as operator controls for critical start/stop, ramp/jog and set point adjustment, the PanelMate ePro PS products offer a reliable and safe interface for a wide range of industrial applications such as:

- Discrete manufacturing machine diagnostics and controls
- Oil platform monitoring and control in the petroleum industry
- Central and remote water and wastewater control panels
- Monitoring and control panels for local facilities/air handling equipment
- Tire manufacturing mixing and building processes
- Industrial and commercial power house controls; building HVAC controls
- Material handling and palletizing monitoring and control
- Automotive press and machine parts controls

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Features

Table 35.4-2. Features

Description	Specification
8-inch display models	8.4-inch (213.4 mm), color TFT display, 16 million colors
	SVGA (800 x 600) resolution
	400 nits (400 cd/m^2), OD models 425 nits (425 cd/m^2) brightness
	50,000 hours typical life for backlight; field replaceable
	Auto dimming
10-inch display models	10.4-inch (260 mm), color TFT display, 16 million colors
	SVGA (800 x 600) resolution
	420 nits (420 cd/m^2) brightness
	50,000 hours typical life for backlight; field replaceable
	Auto dimming
12-inch display models	12.1-inch (307.3 mm), color TFT display, 16 million colors
	SVGA (800 x 600) resolution
	450 nits (450 cd/m^2), OD models 505 nits (505 cd/m^2) brightness
	50,000 hours typical life for backlight, field replaceable
	Auto dimming
15-inch display models	15.0-inch (381.0 mm), color TFT display, 16 million colors
	XGA (1024 x 768) resolution
	250 nits (250 cd/m^2), OD models 600 nits (600 cd/m^2) brightness
	50,000 hours typical life for backlight, field replaceable
	Auto dimming
Blind node (no display) models	VGA (640 x 480), SVGA (800 x 600), XGA (1024 x 768), SXGA (1280 x 1024), UXGA (1600 x 1200) resolution
	16 million colors (SXGA and UXGA—65K colors)
Operator entry	Touchscreen interface with resistive technology for gloved-hand operation
	Pop-up, on-screen alphanumeric keypad support
Hardware/mounting	Single-piece lightweight design for easy panel mounting (except blind node models)
Powerful OI capabilities	Supports Canvas controls
	Built-in two-touch control
	Full math and logic expressions
Communications and I/O capabilities	One integrated Ethernet port: 10/100Base-T
	Two serial ports: RS-232 and RS-232/422/485 (optically isolated)
	Four USB ports: V2.0
	One CompactFlash memory card slot
	Two PCMCIA Type II slots (or one Type III)
	Built-in OPC client/server with support for over 100 OPC drivers for both Ethernet and serial connectivity
	One video output port
Protect mode	Safeguards the integrity of operating system files and data files by preventing unauthorized alterations and corruption caused by viruses or unexpected power disruptions

Standards and Certifications

- RoHS, CE mark
- UL/cUL and CSA Class I, Div 2, Groups A, B, C, D

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Product Selection

PanelMate ePro PS

Table 35.4-3. PanelMate ePro PS Operator Interface (76xx Series)

Description	Catalog Number
PanelMate ePro PS	
8.4-inch color TFT display, touchscreen (acrylic), OPC, DC, user manual on CD-ROM	**7685T-8**
10.4-inch color TFT display, touchscreen (glass), OPC, painted steel, DC, user manual on CD-ROM	**7685T-10**
10.4-inch color TFT display, touchscreen (glass), OPC, stainless steel, DC, user manual on CD-ROM	**7685ST-10**
12.1-inch color TFT display, touchscreen (glass), OPC, painted steel, DC, user manual on CD-ROM	**7685T-12**
12.1-inch color TFT display, touchscreen (glass), OPC, stainless steel, DC, user manual on CD-ROM	**7685ST-12**
15.0-inch color TFT display, touchscreen (glass), OPC, painted steel, DC, user manual on CD-ROM	**7685T-15**
15.0-inch color TFT display, touchscreen (glass), OPC, stainless steel, DC, user manual on CD-ROM	**7685ST-15**
Blind node (no display, see table on **Page 35.4-9** for display options), OPC, DC, user manual on CD-ROM	**7600**
PanelMate ePro PS EE (Enterprise Edition)	
8.4-inch color TFT display, touchscreen (acrylic), OPC, DC, user manual on CD-ROM	**7685T-8E**
10.4-inch color TFT display, touchscreen (glass), OPC, painted steel, DC, user manual on CD-ROM	**7685T-10E**
10.4-inch color TFT display, touchscreen (glass), OPC, stainless steel, DC, user manual on CD-ROM	**7685ST-10E**
12.1-inch color TFT display, touchscreen (glass), OPC, painted steel, DC, user manual on CD-ROM	**7685T-12E**
12.1-inch color TFT display, touchscreen (glass), OPC, stainless steel, DC, user manual on CD-ROM	**7685ST-12E**
15.0-inch color TFT display, touchscreen (glass), OPC, painted steel, DC, user manual on CD-ROM	**7685T-15E**
15.0-inch color TFT display, touchscreen (glass), OPC, stainless steel, DC, user manual on CD-ROM	**7685ST-15E**
Blind node (no display, see table on **Page 35.4-9** for display options), OPC, DC, user manual on CD-ROM	**7600E**
PanelMate ePro PS OD (Outdoor)	
8.4-inch color TFT display, touchscreen (acrylic), OPC, DC, user manual on CD-ROM	**7685T-8OD**
12.1-inch color TFT display, touchscreen (glass), OPC, painted steel, DC, user manual on CD-ROM	**7685T-12OD**
12.1-inch color TFT display, touchscreen (glass), OPC, stainless steel, DC, user manual on CD-ROM	**7685ST-12OD**
15.0-inch color TFT display, touchscreen (glass), OPC, painted steel, DC, user manual on CD-ROM	**7685T-15OD**
15.0-inch color TFT display, touchscreen (glass), OPC, stainless steel, DC, user manual on CD-ROM	**7685ST-15OD**
PanelMate ePro PS Classic	
8.4-inch color TFT display, touchscreen (acrylic), OPC, DC, user manual on CD-ROM	**7685T-8C**
10.4-inch color TFT display, touchscreen (glass), OPC, painted steel, DC, user manual on CD-ROM	**7685T-10C**
10.4-inch color TFT display, touchscreen (glass), OPC, stainless steel, DC, user manual on CD-ROM	**7685ST-10C**
12.1-inch color TFT display, touchscreen (glass), OPC, painted steel, DC, user manual on CD-ROM	**7685T-12C**
12.1-inch color TFT display, touchscreen (glass), OPC, stainless steel, DC, user manual on CD-ROM	**7685ST-12C**
15.0-inch color TFT display, touchscreen (glass), OPC, painted steel, DC, user manual on CD-ROM	**7685T-15C**
15.0-inch color TFT display, touchscreen (glass), OPC, stainless steel, DC, user manual on CD-ROM	**7685ST-15C**
Blind node (no display, see table on **Page 35.4-9** for display options), OPC, DC, user manual on CD-ROM	**7600C**

Note: For ePro PS Enterprise Edition models with Visual Designer pre-licensed runtime:
Add suffix -V04 for 4000 tags, five drivers, one Web session.
Add suffix -V64 for 64,000 tags, eight drivers, one Web session.

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Table 35.4-4. PanelMate ePro PS Spare Parts for all New RoHS Compliant Models ①

Description	Standard	Enterprise Edition	Classic	Outdoor	Catalog Number
8.4-Inch Models					
Color TFT display assembly	■	■	■		35-4756-3
Acrylic touchscreen (gaskets 32-01682 and 32-02208 required)	■		■		47-50888
Acrylic touchscreen (gaskets 32-01682 and 32-02208 required)		■			47-50888-1
Front panel assembly	■	■	■	■	91-01494
Gasket for front panel	■	■	■	■	32-01682
Gasket for touchscreen	■	■	■	■	32-02208
Backlight kit	■	■	■	■	99-5704
Ship kit	■	■	■	■	86-00088
Outdoor color TFT display assembly				■	34-4290
Outdoor acrylic touchscreen (gaskets 32-1682 and 32-02208 required)				■	47-50888-2
10.4-Inch Models					
Color TFT display assembly	■	■	■		35-4756-2
Glass touchscreen	■	■	■		63-00585
Front panel (CRS) assembly (gaskets 32-02545 and 32-02546 required)	■	■	■		32-02544
Front panel (SST) assembly (gaskets 32-02545 and 32-02546 required)	■	■	■		32-02550
Gasket for front panel	■	■	■		32-02545
Gasket for touchscreen	■	■	■		32-02546
Backlight kit	■	■	■		99-5704-2
Ship kit	■	■	■		86-00090
12.1-Inch Models					
Color TFT display assembly	■	■	■		35-4756
Glass touchscreen	■	■	■		63-00808
Front panel (CRS) assembly (gaskets 32-02491 and 32-02492 required)	■	■	■	■	32-02489
Front panel (SST) assembly (gaskets 32-02491 and 32-02492 required)	■	■	■	■	32-02514
Gasket for front panel	■	■	■	■	32-02491
Gasket for touchscreen	■	■	■	■	32-02492
Backlight kit	■	■	■	■	99-5704-3
Ship kit	■	■	■	■	86-00089
Outdoor color TFT display assembly				■	34-4289
Outdoor glass touchscreen				■	63-00841
15.0-Inch Models					
Color TFT display assembly	■	■	■		63-00814
Glass touchscreen	■	■	■		63-00809
Front panel (CRS) assembly (gaskets 32-02497 and 32-02498 required)	■	■	■	■	32-02490
Front panel (SST) assembly (gaskets 32-02497 and 32-02498 required)	■	■	■	■	32-02515
Gasket for front panel	■	■	■	■	32-02497
Gasket for touchscreen	■	■	■	■	32-02498
Backlight kit	■	■	■		87-02457
Ship kit	■	■	■	■	86-00089
Outdoor color TFT display assembly				■	63-00853
Outdoor glass touchscreen				■	63-00850
Outdoor backlight kit				■	87-02515
Blind Node					
Ship kit	■	■	■		86-00087

① RoHS compliant units have a silver-colored galvanized steel back cover. Non-RoHS compliant units have a gold-colored plated steel back cover.

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Table 35.4-5. PanelMate ePro PS Spare Parts for all Legacy Non-RoHS Compliant Models ①

Description	Standard	Enterprise Edition	Classic	Outdoor	Catalog Number
8.4-Inch Models					
Acrylic touchscreen (gaskets 32-01682 and 32-02208 required)	■	■	■		63-00833
Front panel assembly	■	■	■	■	91-01494
Gasket for front panel	■	■	■	■	32-01682
Gasket for touchscreen	■	■	■	■	32-02208
Backlight kit	■	■	■	■	87-02455
Ship kit	■	■	■	■	86-00088
Outdoor color TFT display assembly				■	63-00854
Outdoor acrylic touchscreen (gaskets 32-1682 and 32-02208 required)				■	63-00848
10.4-Inch Models					
Color TFT display assembly	■		■		63-00852
Glass touchscreen	■		■		63-00585
Front panel (CRS) assembly (gaskets 32-02545 and 32-02546 required)	■		■		32-02544
Front panel (SST) assembly (gaskets 32-02545 and 32-02546 required)	■		■		32-02550
Gasket for front panel	■		■		32-02545
Gasket for touchscreen	■		■		32-02546
Ship kit	■		■		86-00090
12.1-Inch Models					
Color TFT display assembly	■	■			63-00815
Glass touchscreen	■	■			63-00808
Front panel (CRS) assembly (gaskets 32-02491 and 32-02492 required)	■	■		■	32-02489
Front panel (SST) assembly (gaskets 32-02491 and 32-02492 required)	■	■		■	32-02514
Gasket for front panel	■	■		■	32-02491
Gasket for touchscreen	■	■		■	32-02492
Backlight kit	■	■		■	87-02456
Ship kit	■	■		■	86-00089
Outdoor color TFT display assembly				■	63-00842
Outdoor glass touchscreen				■	63-00841
15.0-Inch Models					
Color TFT display assembly	■	■			63-00814
Glass touchscreen	■	■			63-00809
Front panel (CRS) assembly (gaskets 32-02497 and 32-02498 required)	■	■		■	32-02490
Front panel (SST) assembly (gaskets 32-02497 and 32-02498 required)	■	■		■	32-02515
Gasket for front panel	■	■		■	32-02497
Gasket for touchscreen	■	■		■	32-02498
Backlight kit	■	■			87-02457
Ship kit	■	■		■	86-00089
Outdoor color TFT display assembly				■	63-00853
Outdoor glass touchscreen				■	63-00850
Outdoor backlight kit				■	87-02515
Blind Node					
Ship kit	■	■	■		86-00087

① RoHS compliant units have a silver-colored galvanized steel back cover. Non-RoHS compliant units have a gold-colored plated steel back cover.

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Technical Data and Specifications

Table 35.4-6. PanelMate ePro PS

Description	Specification
Memory	PS, OD and classic models: 512 MB DDR2 RAM, 1 GB internal CompactFlash (C and D drive) EE models: 1 GB DDR2 RAM, 4 GB internal CompactFlash (C drive), 512 MB external CompactFlash (D drive) All models: External CompactFlash card slot, USB and PCMCIA ports available for additional memory
Voltage	24 Vdc nominal (16–30 Vdc)
Power consumption/heat output	8.0-inch display models: 31 watts (105 BTU/hour) 10.0-inch display models: 33 watts (113 BTU/hour) 12.0-inch display models: 35 watts (120 BTU/hour) 15.0-inch display models: 54 watts (184 BTU/hour), OD 52 watts (178 BTU/hour) Blind node (no display) models: 24 watts (82 BTU/hour)
Current	8.0-inch display models: 1.3A 10.0-inch display models: 1.4A 12.0-inch display models: 1.5A 15.0-inch display models: 2.25A Blind node (no display) models: 1.0A
Peak inrush current	8.0-inch display models: 7.0A 10.0-inch display models: 7.0A 12.0-inch display models: 7.0A 15.0-inch display models: 8.0A Blind node (no display) models: 7.0A
Installation rating	All ePro PS display models are approved for use in Type 4, 4X, 12 and IP65 installations when properly mounted in a correspondingly rated enclosure
System ambient temperature	All models— Operating: 0° to 60°C (32° to 140°F) Non-operating: –25° to 70°C (–13° to 158°F)
System vibration	Operating and non-operating: 1G from 5–500 Hz
System shock	Operating and non-operating: 100G
Relative humidity	Operating: 20–95% noncondensing Non-operating: 20–95% noncondensing
Altitude	Operating: 10,000 ft (3048m) above sea level Non-operating: 40,000 ft (12,192m) above sea level
Emissions	CISPR 11 Class A, radiated and conducted
Noise immunity	IEC 61000-4-2, 3, 4, 5, 6, 8, 11
Overall dimensions in inches (mm) (H x W x D)	8.0-inch display models: 7.63 x 10.51 x 3.90 (193.8 x 267.0 x 99.1) 10.0-inch display models: 12.00 x 12.30 x 3.90 (304.8 x 312.4 x 99.1) 12.0-inch display models: 11.60 x 15.90 x 3.90 (294.6 x 403.9 x 99.1) 15.0-inch display models: 13.50 x 18.60 x 4.00 (342.9 x 472.4 x 101.6) Blind node (no display) models: 9.30 x 12.00 x 3.60 (236.2 x 304.8 x 91.4)
Cutout dimensions in inches (mm) (H x W)	8.0-inch display models: 6.50 x 9.38 (165.1 x 238.3) 10.0-inch display models: 11.02 x 11.40 (279.9 x 289.6) 12.0-inch display models: 10.12 x 14.34 (257.0 x 364.2) 15.0-inch display models: 12.05 x 17.01 (306.1 x 432.1) Blind node (no display) models: Designed for mounting inch a cabinet
Weight in lbs (kg)	8.0-inch display models: 6.0 (2.73) 10.0-inch display models: 10.5 (4.77) 12.0-inch display models: 13.0 (5.91) 15.0-inch display models: 17.0 (7.73) Blind node (no display) models: 4.5 (2.05)

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Standalone Touchscreen Displays

Standalone Touchscreen Displays

General Description

Three sizes of color TFT flat panel displays with touchscreens are available for use with the PanelMate ePro Blind Nodes. Models are available in 12.1, 15.0 and 17.0-inch sizes. These displays are constructed to handle rugged environments and can be easily mounted in a cabinet or a kiosk.

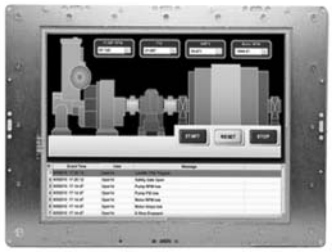
Features

- 12.1-inch SVGA, 15.0-inch XGA and 17.0-inch SXGA color TFT LCD displays
- Five-wire analog resistive ELO touchscreen
- Stainless steel open-frame architecture
- Aluminum front bezel
- Strengthened glass protects the front panel from shock damage
- Approved for use in Type 4, 12 and IP65 installations when properly mounted in a correspondingly rated enclosure

Standards and Certifications

- CE
- FCC Class A
- UL

Product Selection



*7585DT-1_*

Table 35.4-7. Standalone Touchscreen Displays

Description	Catalog Number
12.1-inch color TFT display, ELO touchscreen (glass), AC	**7585DT-12**
15.0-inch color TFT display, ELO touchscreen (glass), AC	**7585DT-15**
17.0-inch color TFT display, ELO touchscreen (glass), AC	**7585DT-17**

Technical Data and Specifications

Table 35.4-8. PanelMate Standalone Touchscreen Displays

Description	Specification
Voltage	100–240 Vac
System ambient operating temperature	Operating: 32° to 122°F (0° to 50°C)
System vibration	12.1-inch models: 10–200 Hz, 0.15 mm, 10 cycle, 1G 15.0-inch models: 10 Hz, 0.15 mm, 10 cycle, 1G 17.0-inch models: 10–500 Hz
System shock	12.1-inch models: 15G peak acceleration (50 ms duration) 15.0-inch models: 30G peak acceleration (11 ms duration) 17.0-inch models: 30G peak acceleration (11 ms duration)
Backlight	12.1-inch models: 50,000 typical life 15.0-inch models: 50,000 typical life 17.0-inch models: 30,000 typical life
Overall dimensions in inches (mm) (H x W x D)	12.1-inch models: 11.46 x 14.41 x 1.92 (291.1 x 366.0 x 48.8) 15.0-inch models: 13.23 x 17.48 x 2.10 (336.0 x 444.0 x 53.3) 17.0-inch models: 15.71 x 19.02 x 2.25 (399.0 x 483.1 x 57.2)
Cutout dimensions in inches (mm) (H x W)	12.1-inch models: 10.16 x 13.11 (258.1 x 333.0) 15.0-inch models: 11.77 x 15.94 (299.0 x 404.9) 17.0-inch models: 14.45 x 17.68 (367.0 x 449.1)
Weight in lbs (kg)	12.1-inch models: 12 (5.5) 15.0-inch models: 14 (6.5) 17.0-inch models: 34 (15.4)

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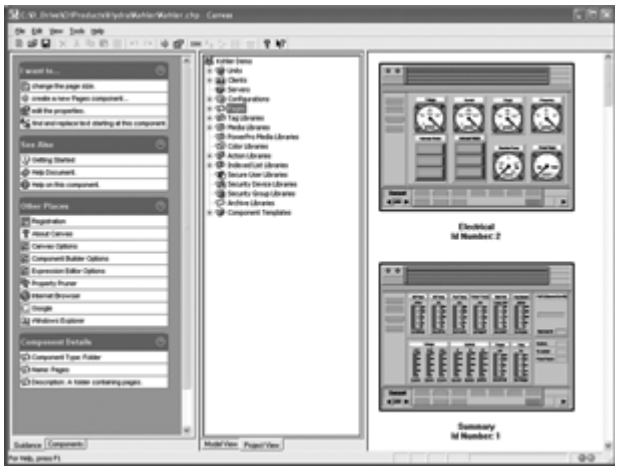
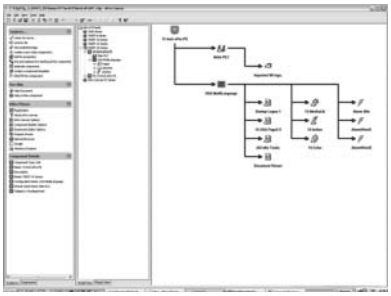
Canvas Software



Canvas Software

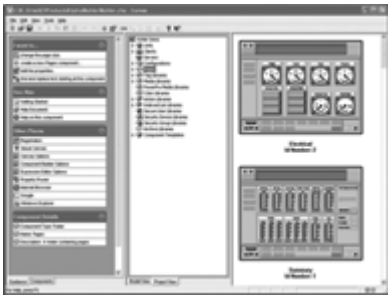
General Description

The Canvas Software includes the Canvas application development software in addition to the Runtime software for the PanelMate ePro PS and the OPC servers/drivers. Canvas software is used to develop operator interface applications for PanelMate ePro PS industrial operator interface products. The powerful editing environment in Canvas delivers state-of-the-art features previously available only on more expensive, high-end SCADA packages. The included drivers in the form of OPC servers support Ethernet and serial connectivity to virtually any PLC platform or network, as well as a wide array of drives, motion controllers and databases. No additional fees are required.



Canvas Editor

Because the typical application development expense of a Human Machine Interface often far outweighs the expense of the hardware, the demand to design and implement these advanced solutions quickly is of paramount importance. That is why the Canvas advanced Operator Interface software package was designed with ease of use and time savings in mind.



Canvas Editor with Page Thumbnails

Consistent functionality in Canvas from one control to the next and from one area to the next will help you maintain your sense of place within the project and shorten the development time. Canvas makes it easy to create and maintain an application with advanced features such as multi-language, security, recipe management and data archiving. Data may be exported, edited and imported with Microsoft Excel, saving time and ultimately reducing the cost of the project.

Canvas Application

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Features

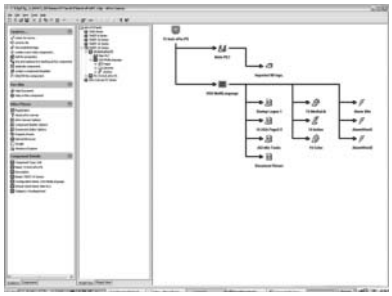
- Operator interface—monitor and control
- High-resolution graphical interface
- Built-in two-touch control for safety applications
- Process/machine diagnostics
- Conversion of legacy PanelMate configurations
- Secure document and Web/network browser
- Full mathematical evaluation
- Advanced search and replace
- Security (passwords and other security devices)
- Recipe management
- Real-time and historical alarms and events
- Real-time and historical data archiving and trending
- Notification of data and events via e-mail
- Import/export from XML
- Customizable templates/controls
- Scripting (IF, THEN, ELSE, GOTO capability)
- Launch and control of third-party applications
- Multi-language
- Reusable controls, images and pages via index lists
- Master pages
- Online and offline simulation
- Interface for DVT and Cognex Vision Systems

System Requirements

- Operating system— Microsoft Windows XP (SP1 or later) or Microsoft Windows Vista (Canvas V3.3 or later)
- Minimum Video Resolution—XGA (1024 x 768)

Note: File transfers can be done via Ethernet or USB memory devices.

Product Selection



CANVASPRO

Table 35.4-9. Canvas

Description	Catalog Number
Includes Canvas software for developing applications, Runtime software for the PanelMate ePro PS Series and supporting OPC servers/drivers. Single user license. On CD-ROM. Development software requires Windows 2000 or Windows XP operating system.	**CANVASPRO**
Site license—See CANVASPRO (for all users at one site location)	**CANVASPROSL**
Installation CD and licensing to run Canvas runtime software on a PC with Windows XP Professional OS. Licenses for Kepware OPC servers, data archiving and recipe management are included.	**CANVASPC**

35

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PanelMate Power Pro LT 1100, 1700, 3000 and 5000

PanelMate Power Pro LT 1100, 1700, 3000 and 5000

General Description

The PanelMate Power Pro Operator Interfaces are a cost-efficient, easy-to-integrate alternative to traditional hardwired operator panels in control systems.

The PanelMate Power Pro products have the same cutout and stud pattern as earlier model PanelMate products and offer increased capabilities.

Control functions, such as machine status indication and pushbutton-style control, are accomplished using built-in templates displayed on a vivid screen. The PanelMate Power Pro simulates the action and performance of hard-wired pushbuttons using sealed, recessed membrane control buttons on the touchpanel version or on-screen buttons on the touchscreen version. The proven intuitive operation remains the same in all PanelMate products.

Operators select templates or graphic images by moving a finger around the touchpanel or touchscreen. After selecting a template, the operator performs control actions by pressing control buttons. Users may navigate and initiate control action with just one touch (touchscreen only), if such functionality is configured for the unit using the PanelMate Power Pro Windows-based configuration software.

Features

Simplified Machine Control

- Functions such as machine setup, diagnostics, alarming, trending and custom graphics can be configured easily using the PanelMate Power Pro configuration software. This intuitive software significantly reduces the time and effort needed to create your application. The software also provides complete compatibility of configuration files with other PanelMate series products (Version 2.1 or later)
- Realistic representations of machines and processes can be displayed on all PanelMate models. Detailed symbols can be designed to the pixel level or selected from a symbol library of over 3000 customizable and scalable images. These graphics make displays more meaningful and allow operators to easily recognize and understand the displayed data. The eight-state blinking feature can be used to highlight critical functions, provide animation effects and attract the operator's attention to important information
- Application flexibility is provided by hardware features that include:
  - ❑ Approved for use in Type 4, 4X and 12 installations when properly mounted in a correspondingly rated enclosure. Stainless steel models available for PanelMate Power Pro 3000 and 5000 series
  - ❑ Executive firmware stored in nonvolatile flash memory for easy upgrades
  - ❑ Battery-backed clock that can be synchronized externally
  - ❑ Two RS-232/RS-422 serial ports for communications or printing alarms and messages (except PM 1100 models)
  - ❑ Optional, high-speed, network interface boards for connectivity to a variety of networks
  - ❑ System diagnostics
  - ❑ All PanelMate Power Pro models have up to 100-page, 5000-message capacity
  - ❑ PanelMate Pro LT supports up to 64 I/O references (expandable up to 512 I/O points) and a single communication driver
- Display features on all units provide VGA (640 x 480) resolution with 256-level grayscale on the gray-scale versions or 256-color palette on color versions
- Touchpanel for all models include a display with electronics module and membrane keypad with off-screen 3 x 5 cell control selection, cancel key and numeric entry keypad, with four redefinable membrane control buttons to the right of the display. The PanelMate 5000 units have five membrane control buttons
- Touchscreen for all models include a display with electronics module and on-screen 3 x 5 cell control selection, four redefinable on-screen control buttons, on-screen cancel key and non-intrusive, pop-up, on-screen numeric keypad. The PanelMate 5000 units have five on-screen control buttons

Displays Available

- 7.4-inch grayscale LCD Flatpanel (PM Pro LT 1100, PMPP 1700)
- 7.7-inch color DSTN Flatpanel (PM Pro LT 1100, PMPP 1700)
- 8.4-inch color TFT Flatpanel (PMPP 1700)
- 10.4-inch color TFT Flatpanel (PMPP 3000 and 5000)
- Split Architecture 10.4-inch color TFT Flatpanel (PMPP 5000)
- All models available in touchscreen and touchpanel (keypad)

Standards and Certifications

- CE approved
- UL
- CSA
- UL Class I Division 2 Groups A, B, C, D

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Product Selection

PanelMate Pro LT 1100

The PanelMate Pro LT 1100 is available with a 7.4-inch grayscale LCD or 7.7-inch color Dual Scan (DSTN) display with full VGA resolution and 256 shades/colors. Models are available with either touchscreen (acrylic) or touchpanel for operator input and can be mounted in a 4.0-inch deep enclosure. The PanelMate Pro LT 1100 supports applications with up to 64 I/O references and a single communication driver. The number of supported I/O references can be upgraded to 512 I/O points (done in blocks of 64 I/O points—see 1100TAG Options). The PanelMate Pro LT 1100 requires 24 Vdc power input.

PanelMate Pro LT 1100

Table 35.4-10. PanelMate Pro LT 1100 Operator Stations

Description	Catalog Number
7.4-Inch Grayscale LCD Display	
Touchpanel Touchscreen	**1155K** **1155T**
7.7-Inch Color DSTN Display	
Touchpanel Touchscreen	**1175K** **1175T**

PanelMate Pro LT 1100

Table 35.4-11. PanelMate Pro LT 1100 Spare Parts

Description	Catalog Number
Keypad (4- and 15-position combined with window) for 1155K, 1175K (gasket 32-01941 required)	**63-00742**
Gasket for keypad (between keypad and display) for 1155K, 1175K	**32-01941**
Touchscreen for 1155T and 1175T (gaskets 32-01682 and 32-01941 required). **Do not replace 63-00632, contact factory**	**63-00838**
Gasket for touchscreen for 1155T, 1175T: Between touchscreen and front panel Between touchscreen and display	 **32-01682** **32-01941**
Front panel assembly for 1155K, 1175K	**91-01913**
Front panel assembly for 1155T, 1175T	**91-01494**
Ship kit for 1155K, 1175K	**86-00078**
Ship kit for 1155T, 1175T	**86-00077**

PanelMate Power Pro 1700

The PanelMate Power Pro 1700 is available with a 7.4-inch grayscale LCD, 7.70 inch color Dual-Scan (DSTN) or 8.4-inch color TFT display with full VGA resolution and 256 shades/colors. Models are available with either touch-screen (acrylic) or touchpanel for operator input and can be mounted in a 4.0-inch deep enclosure. The PanelMate Power Pro models require 24 Vdc power input.

Ordering Information

For conformal coating, add **-CC** after the catalog number. Example: 1755K-**CC**.

PanelMate Pro 1700

Table 35.4-12. PanelMate Power Pro 1700 Operator Stations

Description	Catalog Number
7.4-Inch Grayscale LCD Display	
Touchpanel Touchscreen	**1755K** **1755T**
7.7-Inch Color DSTN Display	
Touchpanel Touchscreen	**1775K** **1775T**
8.4-Inch Color TFT Display	
Touchpanel Touchscreen	**1785K** **1785T**

Table 35.4-13. PanelMate Power Pro 1700 Spare Parts

Description	Catalog Number
8.4-inch color TFT display assembly for 1785	**35-4974**
Keypad (4- and 15-position combined with window) for 1755K, 1775K (gasket 32-01941 required)	**63-00742**
Gasket for keypad (between keypad and display) for 1755K, 1775K	**32-01941**
Front panel gasket for 1755K, 1775K	**32-02229**
Keypad (4- and 15-position combined with window) for 1785K (gasket 32-02208 required)	**63-00741**
Gasket for keypad (between keypad and display) for 1785K	**32-02208**
Touchscreen for 1755T, 1775T (gaskets 32-01682 and 32-01941 required). **Do not replace 63-00632; contact factory**	**63-00835**
Gasket for touchscreen for 1755T, 1775T: Between touchscreen and front panel Between touchscreen and display	 **32-01682** **32-01941**
Touchscreen for 1785T (gaskets 32-01682 and 32-02208 required)	**63-00831**
Gasket for touchscreen for 1785T: Between touchscreen and front panel Between touchscreen and display	 **32-01682** **32-02208**
Front panel assembly for 1755K, 1775K	**91-01801**
Front panel assembly for 1785K	**91-01826**
Front panel assembly for 1755T, 1775T, 1785T	**91-01494**
Gasket for mounting 1785T front panel assembly	**32-02005**
Backlight kit for 1785	**87-02455**
Ship kit for 1755K, 1775K, 1785K	**86-00060**
Ship kit for 1755T, 1775T, 1785T	**86-00059**

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PanelMate Power Pro 3000

The PanelMate Power Pro 3000 is available with a 10.4-inch color TFT display with full VGA resolution and 256 colors. Models are available with either touchscreen (glass or acrylic) or touchpanel for operator input and with painted steel or stainless steel front panels. These units can be mounted in a 5.0-inch deep enclosure. The PanelMate Power Pro models require 24 Vdc power input.

Ordering Information

For conformal coating, add **-CC** after the catalog number. Example: 3985K-**CC**.

PanelMate Pro 3000

Table 35.4-14. PanelMate Power Pro 3000 Operator Stations

Description	Catalog Number
10.4-Inch Color TFT Display	
Touchpanel painted steel Touchpanel stainless steel Touchscreen (glass) painted steel	**3985K** **3985SK** **3985T**
Touchscreen (glass) stainless steel Touchscreen (acrylic) painted steel Touchscreen (acrylic) stainless steel	**3985ST** **3985AT** **3985SAT**

Table 35.4-15. PanelMate Power Pro 3000 Spare Parts

Description	Catalog Number
10.4-inch color TFT display assembly for 3985	**63-00778**
Keypad (4- and 15-position combined with window) for 3985K	**63-00740**
Plexi-glass window for 3985K series	**32-02151**
Touchscreen (glass) for 3985T and 3885ST	**63-00585**
Touchscreen (acrylic) for 3985AT and 3985SAT	**63-00592**
Front panel for 3985K (gasket 32-02143 required)	**32-02141**
Front panel for 3985SK (gasket 32-02143 required)	**32-02288**
Gasket for front panel for 3985K and 3985SK	**32-02143**
Front panel for 3985T and 3985AT (gaskets 32-02144 and 32-02145 required)	**32-02142**
Front panel for 3985ST and 3985SAT (gaskets 32-02144 and 32-02145 required)	**32-02289**
Gasket for front panel for 3985T, 3985ST, 3985AT and 3985SAT	**32-02144**
Gasket for touchscreen for 3985T, 3985ST, 3985AT and 3985SAT	**32-02145**
Backlight kit for 3985	**87-02379**
Ship kit for 3985	**86-00066**

PanelMate Power Pro 5000

The PanelMate Power Pro 5000 features a 10.4-inch color TFT display with full VGA resolution and 256 colors. Models are available with a touchscreen (glass) or touchpanel for operator input and with painted steel or stainless steel. The touchpanel versions are available with either of two designs—single-piece front panel or the split architecture design. The touchpanel models can be mounted in a 19.0-inch rack. The cutout and stud patterns for all models are the same as earlier versions of PanelMate products that featured the 13.0-inch display, including the PanelMate I/II/III. The PanelMate Power Pro models require 24 Vdc power input. The PanelMate Power Pro 5000 can also be ordered with an AC power converter mounted on the back.

PanelMate Power Pro 5000

Table 35.4-16. PanelMate Power Pro 5000 Operator Stations

Description	Catalog Number ①
10.4-Inch Color TFT, Single Piece Front Panel	
Touchpanel painted steel Touchpanel stainless steel Touchpanel painted with AC power converter	**5785K** **5785SK** **5785K-AC**
Touchscreen painted steel Touchscreen stainless steel Touchscreen painted with AC power converter	**5785T** **5785ST** **5785T-AC**
10.4-Inch Color TFT, Split Architecture Design	
Touchpanel painted steel Touchpanel stainless steel Touchpanel painted with AC power converter	**5485K** **5485SK** **5485K-AC**

① Add "**-CC**" after the catalog number for conformal coating. Example: 5785K-**CC**.

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Table 35.4-17. PanelMate Power Pro 5000 Spare Parts

Description	Catalog Number
10.4-inch color TFT display assembly for 5485, 5785	**63-00778**
10.4-inch backlight kit for 5485, 5785	**87-02379**
10.4-inch front panel for 5585K, 5785K (gasket 32-02301 and 32-02145 required)	**47-50632**
10.4-inch front panel (SST) for 5585SK, 5785SK (gasket 32-02301 and 32-02145 required)	**47-50632-2**
10.4-inch front panel for 55885T, 5785T (gaskets 32-02204 and 32-02145 required)	**47-51017**
10.4-inch front panel (SST) for 5585ST, 5785ST (gaskets 32-02204 and 32-02145 required)	**47-51017-2**
10.4-inch front panel (Upper) for 5285K, 5485K (gasket 32-02308 and 32-02145 required)	**47-51016**
10.4-inch front panel (Upper, SST) for 5285SK, 5485SK (gasket 32-02308 and 32-02145 required)	**47-51016-2**
10.4-inch gasket for front panel for 5585K, 5585SK, 5785K, 5785SK	**32-02301**
10.4-inch gasket for front panel	**32-02145**
10.4-inch touchscreen glass for 5585T, 5785T	**63-00585**
13.0-inch touchscreen for 5585T, 5785T	**63-00658**
13.0-inch front panel for 5585K, 5785K (gasket 32-02301 required)	**32-02206**
13.0-inch front panel (SST) for 5585SK, 5785SK (gasket 32-02301 required)	**32-02432**
13.0-inch front panel for 55885T, 5785T (gaskets 32-02204 and 32-02066 required)	**32-02200**
13.0-inch front panel (SST) for 5585ST, 5785ST (gaskets 32-02204 and 32-02066 required)	**32-02430**
13.0-inch front panel (upper) for 5285K, 5485K (gasket 32-02308 required)	**32-02297**
13.0-inch front panel (upper, SST) for 5285SK, 5485SK (gasket 32-02308 required)	**32-02433**
13.0-inch gasket for front panel for 5585K, 5585SK, 5785K, 5785SK	**32-02301**
13.0-inch gasket for touchscreen for 5585T, 5585ST	**32-02066**
Gasket for front panel for 5585T, 5585ST	**32-02204**
Gasket for upper front panel for 5285K, 5285SK,5485K, 5485SK	**32-02308**
Membrane keypad (5- and 15-position combined) for 5585K, 5785K	**63-00714**
Membrane keypad (5-position) for 5285K, 5485K	**63-00715**
Membrane keypad (15-position) for 5285K, 5485K	**63-00375**
Front panel (lower) for 5285K, 5485K (gasket 32-01392 required)	**32-02303**
Front panel (lower, SST) for 5285SK, 5485SK (gasket 32-01392 required)	**32-01388**
Gasket for lower front panel for 5285K, 5285SK, 5485K, 5485SK	**32-01392**
Backlight kit for 5585, 5285	**87-02137**
Add-on 115/230 Vac to 24 Vdc power converter for PanelMate Power Pro 5000, all models. Mounts on back of unit and adds 1.50 inch of depth	**PM5000-ACKIT**
Ship kit for 5585K, 5785K	**86-00067**
Ship kit for 5585T, 5785T	**86-00068**
Ship kit for 5285K, 5485K	**86-00069**

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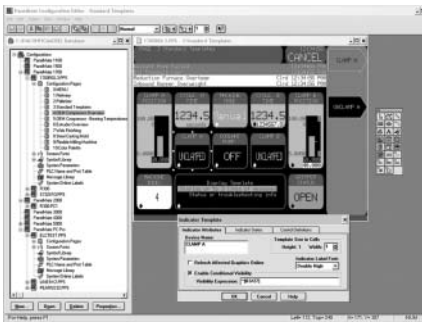
PanelMate PC Pro Runtime Hardware Key



PanelMate PC Pro Runtime Hardware Key

General Description

PanelMate PC Pro is an online version of the PanelMate Power Pro executive software and communication drivers, designed to run on an industry-standard Intel-based personal computer and the Windows NT 4.0 operating system. PanelMate PC Pro is a full 32-bit, Windows NT-compliant software package with 32-bit Windows NT PLC drivers, created to take advantage of standard, open architecture hardware and software developed by other vendors, while maintaining the PanelMate's legendary simplicity and ease of use.

System Requirements

PanelMate PC Pro software can be installed on any PC running Windows NT 4.0 or greater that meets the following minimum requirements:

- Intel Pentium 133 MHz (200 MHz recommended)
- 32 MB DRAM (64 MB recommended)
- 1 GB hard drive
- VGA controller and monitor
- Pointing device (touchscreen preferred)
- Windows NT Workstation V 4.0

Features and Benefits

- PanelMate PC Pro allows the user to tap into the valuable data in PanelMate from other PC applications because PanelMate PC Pro is open—bring data from the plant level down to PanelMate, or feed data from PanelMate PC Pro to other information systems in the plant
- PanelMate PC Pro adheres to Windows standards and is Windows compatible, allowing you to use the extensive networking capabilities of Windows NT
- Use of an open hardware/software platform allows the customer to precisely meet their ever-changing needs with easy processor or capacity upgrades, using off-the-shelf hardware. Supplemental functionality can be added using off-the-shelf software, allowing the user to incorporate control, operator interface, analysis, reporting and communications into one workstation
- Use an efficient, Dynamic Link Library (DLL) interface to connect the tried-and-true PanelMate operator interface with Steeplechase's popular Visual Logic Controller soft logic PC control package
- PanelMate PC Pro has the same functionality as the PanelMate Power Pro and is fully compatible with applications created for PanelMate Power Series/PanelMate Power Pro products. Any Power Series/Power Pro application will run on PanelMate PC Pro

Note: When purchasing a PanelMate ePro PS Classic Operator Interface, PanelMate PC Pro is already integrated and ready to run.

Product Selection

Table 35.4-18. PanelMate PC Pro Runtime Hardware Key and License

Description	Catalog Number
Runtime Hardware Key to Enable PanelMate PC Pro Runtime Software Key connects to the PC parallel port and has pass-through capabilities. The hardware key is required for PanelMate online operation.	**PMPC-RT**

Note: Runtime software is included with PanelMate Configuration Software PMPROSW and PMPROSWSL, see **Page 35.4-17**.

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Power Pro Software

Power Pro Software

General Description

Windows-based configuration software is used to create PanelMate Power Pro, PanelMate PC Pro and PanelMate ePro configurations offline on a PC. It also permits the editing of character-based configurations from earlier-version PanelMate Series products. The following items can be configured:

- One-touch control (for touchscreen models)
- Customizable pixel-level graphics
- Eight-state blink (for 256-level/ color models)
- Three-level password protection
- International character set support
- Page change by operators and/or PLC
- User-definable online system prompts to permit non-English or customized text that can be toggled with standard online prompts by operators
- Alarm window with a 100-alarm capacity

Features

- Indicator templates
- Readout templates
- Bar templates
- Display templates
- Trend templates
- Table templates
- Variable-size control button templates
- Pop-up maintenance window
- Alarm window
- Advanced trend templates
- Tag name file support
- Expression management
- 3000 symbol factory clipart

PLC Communication Interfaces

Communication interfaces are available for the following programmable controllers and are downloaded from the configuration software.

Note: Multiple interfaces may be run simultaneously on PanelMate Power Pro 1700, 2000, 3000, 4000 and 5000 units.

- Allen-Bradley PLC-2, PLC-3, PLC-5 and SLC-500
- Eaton D50, D300, D320
- GE Fanuc Series 5, 6, 90
- Mitsubishi "A" Series and "FX" Series
- Modicon Modbus ASCII/RTU
- Omron "C" Series plus CV500, CV1000
- PLC-Direct DL 405 Family
- Square D SyMax
- Siemens S5 Series, 3964R Protocol, AS511
- Simatic TI 305/405 and 500/505 Series
- Reliance AutoMate
- Toshiba T2

High-Speed Direct Connectivity Available

- Allen-Bradley Data Highway and Data Highway Plus
- Allen-Bradley Remote I/O Link
- GE Fanuc GEnius I/O Network
- Modicon Modbus Plus
- PROFIBUS

Transfer Cables

PanelMate configuration software packages PMPROSW and PMPROSWSL include a PanelMate 1100, 1700, 3000, 5000 (0518) Transfer Serial Cable.

Product Selection

Table 35.4-19. Windows Configuration Software for PanelMate Power Pro and PanelMate PC Pro

Description	Catalog Number
PanelMate Power Pro Windows Configuration Software and Manuals with Communication Software Interfaces for all Major PLCs and High-Speed Industrial Networks on CD-ROM with Tag and Expression Management and Symbol Factory Clipart. PMPROSW includes transfer serial cable for PM1700, 3000, 5000 (0518). PMPROSW includes electronic copies of manuals in .PDF format. Single user license.	**PMPROSW**
Site license—See PMPROSW (for all users at one site location)	**PMPROSWSL**
PanelMate Power Pro Upgrade from Previous PanelMate Power Series Software to PanelMate Power Pro software version on CD-ROM. Requires earlier version of PanelMate Power Series software for installation. Single user license.	**PMPROSWUP**
PanelMate Power Pro Software Upgrade—Site License Requires previous installation of PanelMate Power Pro Software site license (PMPROSWSL). On CD-ROM.	**PMPROSWSLUP**

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Accessories

Allen-Bradley Connectivity

Remote I/O, Data Highway, Data Highway Plus

Accelerate/On Interface
Licensed under A-B technology, the interface provides a communication port for connecting directly to the user's choice of Allen-Bradley PLC networks: Remote I/O Link, Data Highway® or Data Highway Plus. Can be used simultaneously with PanelMate 1700, 3000 and 5000 serial ports.

Table 35.4-20. Remote I/O, Data Highway, Data Highway Plus

Description	Catalog Number
Accelerate/On™ Interface	
Direct connect to Remote I/O Link, Data Highway or Data Highway Plus PanelMate Power Pro 1100, 1700 PanelMate Power Pro 3000, 5000	 **1241** **1251**

Allen-Bradley PLC Network Upload/Download
Includes royalty for license under Allen-Bradley technology.

"One-time use" diskette enables the PanelMate unit to upload and download PanelMate configurations to PCs via Allen-Bradley PLC networks. This upload/download feature can be used to conduct the following operations without having to disconnect the PanelMate Unit from the PLC, or open the enclosure to access the serial ports:

- Download configurations from a PC in a central location to PanelMate units on a network
- Upload PanelMate configurations (while units are monitoring and controlling) to a PC for backup
- Download new PanelMate software enhancements to units. Requires Accelerate/On Interface (xx41) and Windows Configuration Software or Transfer Utility option 0621
- Requires A-B RSLinx-OEM version 2.0 or higher or A-B Interchange software

Table 35.4-21. Allen-Bradley PLC Network Upload/Download

Description	Catalog Number
One-time use diskette. Enables upload/download on operator station.	**0524**

Allen-Bradley DH-485 (SLC-500) Communications
Includes royalty for license under Allen-Bradley technology.

"One-time use" diskette. Licensed under A-B technology, this option enables communications to Allen-Bradley SLC-500 PLCs through the DH-485 network in a single target Power Series online unit. A-B 1747-AIC Module is only required when simultaneous interface to PanelMate and PLC programming equipment is desired.

Table 35.4-22. DH-485

Description	Catalog Number
Allen-Bradley DH-485 (SLC-500) Communications	
One-time use diskette PanelMate Power Pro 1100, 1700 PanelMate Power Pro 3000, 5000	 **1525** **0725**

Allen-Bradley Communication Cables

PLC Interface Cables for PanelMate Power Pro 1100, 1700, 3000, 5000 and ePro
One 15 ft (4.6m) cable, unless otherwise stated, for communications between a PanelMate 1100, 1700, 3000, 5000 or ePro unit serial port and the PLC communications port using D-Shell connectors. Cables used with PanelMate ePro require a DB9(M)/DB9(F) converter [converts DB9(M) to DB9(F)].

Table 35.4-23. PLC Interface Cables for PanelMate Power Pro 1100, 1700, 3000, 5000 and ePro

Description	Catalog Number
1785-KE, 1771-KC, KD, KE, KF, KG AB 1747 AIC for SLC 500 (DH-485 INTFC) AB SLC 500 direct (6 ft/1.8m) cable	**AB21** **AB23A** **AB24A**
AB SLC 503/504 (RS-232) Channel 0 AB PLC5 (RS-232) Channel 0, DF1	**AB25** **AB26**
AB PLC5 (RS-422) Channel 0, DF1 cable AB MicroLogix™ adapter cable (1 ft/0.3m) (DB9F to DB9M)	**AB27A** **AB29**

Eaton Connectivity

Eaton Communication Cables

PLC Interface Cables for PanelMate Power Pro 1100, 1700, 3000, 5000, ePro
One 15 ft (4.6m) cable, unless otherwise stated, for communications between a PanelMate 1100, 1700, 3000, 5000 or ePro unit serial port and the PLC communications port using D-Shell connectors.

Table 35.4-24. PLC Interface Cables for PanelMate Power Pro 1100, 1700, 3000, 5000, ePro

Description	Catalog Number
Eaton D200 cable, for use with 1100, 1700, 3000 or 5000 only	**CH21A**
Eaton D50/D150/D300/D320 (RS-485) cable, for use with 1100, 1700, 3000 or 5000 only	**CH22A**
Eaton D50/D320/D32LT (RS-232) cable for use with ePro and PMPC-RT only—requires D50CPM485	**CH23**
ELC (RS-485) cable for use with ePro PS and Power Pro only	**CH24**

General Electric Connectivity

GE Fanuc GEnius I/O Interface to GE PLCs

This interface provides a communication port for connection to GE Series 6 and Series 90 PLCs over the GEnius I/O Network.

Table 35.4-25. GEnius I/O Interface

Description	Catalog Number
GEnius I/O Interface	
For all PanelMate Power Pro 1100, 1700, 3000, 5000	**1243**

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General Electric Communication Cables

PLC Interface Cables for PanelMate Power Pro 1100, 1700, 3000, 5000 or e-Pro

One 15 ft (4.6m) cable, unless otherwise stated, for communications between a PanelMate 1100, 1700, 3000, 5000 or ePro unit serial port and the PLC communications port using D-Shell connectors. Cables used with PanelMate ePro require a DB9(M)/DB9(F) converter [converts DB9(M) to DB9(F)].

Table 35.4-26. PLC Interface Cables for PanelMate Power Pro 1100, 1700, 3000, 5000 or ePro

Description	Catalog Number
Series 90 programming port	**GE21A**
Series 90 (RS-422) Com 311/711 module	**GE22**
Series 90 (RS-232) Com 311/711 module	**GE23**
Series 6/6+ (RS-422) Com 2–J1 port	**GE24**
Series 6/6+ (RS-232) Com 2–J2 port	**GE25**

Mitsubishi Connectivity

Mitsubishi Communication Cables

PLC Interface Cables for PanelMate Power Pro 1100, 1700, 3000, 5000 or ePro

One 15 ft (4.6m) cable, unless otherwise stated, for communications between a PanelMate 1100, 1700, 3000, 5000 or ePro unit serial port and the PLC communications port using D-Shell connectors. Cables used with PanelMate ePro require a DB9(M)/DB9(F) converter [converts DB9(M) to DB9(F)].

Table 35.4-27. PLC Interface Cables for PanelMate Power Pro 1100, 1700, 3000, 5000 or ePro

Description	Catalog Number
A Series—AJ71C24 Module (RS-232)	**MI21**
A Series—AJ71C24 Module (RS-422) cable	**MI22A**
FX/FXo Series—(RS-232/RS-422) converter	**MI23**

Modicon Connectivity

Modicon Modbus Plus PLC Network Upload/Download

"One-time use" diskette enables the PanelMate unit to upload and download PanelMate configurations to PCs via Modicon Modbus Plus PLC networks. This upload/download feature can be used to conduct the following operations without having to disconnect the PanelMate Unit from the PLC, or open the enclosure to access the serial ports:

- Download configurations from a PC in a central location to PanelMate units on a network
- Upload PanelMate configurations (while units are monitoring and controlling) to a PC for backup
- Download new PanelMate software enhancements to units. Requires Modbus Plus Interface, Configuration Software or Transfer Utility

Table 35.4-28. Modicon Modbus Plus Network Upload/Download

Description	Catalog Number
One-time use diskette. Enables upload/download on operator station. To operate, customer requires: 1) Modbus Plus Interface (1248) to be installed in unit 2) Windows Configuration Software OR Transfer Utility on the PC	**0548**

Modbus Plus Communications and PanelMate

This interface provides a communication port for connection to Modicon PLCs over the Modbus Plus network. Interface mounts to the back of the online unit and can be mounted in a 4.0-inch (102.0 mm) deep enclosure.

Table 35.4-29. Modbus Interface

Description	Catalog Number
Direct Modbus Plus Interface	
PanelMate Power Pro 1100, 1700, 3000, 5000	**1248**

Modicon Communication Cables

PLC Interface Cables for PanelMate Power Pro 1100, 1700, 3000, 5000 or ePro

One 15 ft (4.6m) cable, unless otherwise stated, for communications between a PanelMate 1100, 1700, 3000, 5000 or ePro unit serial port and the PLC communications port using D-Shell connectors. Cables used with PanelMate ePro require a DB9(M)/DB9(F) converter [converts DB9(M) to DB9(F)].

Table 35.4-30. PLC Interface Cables for PanelMate Power Pro 1100, 1700, 3000, 5000 or ePro

Description	Catalog Number
9-pin Modbus	**MB21**
Micro PLC (RJ-45) Modbus cable	**MB22**

Omron Connectivity

Omron Communication Cables

PLC Interface Cables for PanelMate Power Pro 1100, 1700, 3000, 5000 or ePro

One 15 ft (4.6m) cable, unless otherwise stated, for communications between a PanelMate1100, 1700, 3000, 5000 or ePro unit serial port and the PLC communications port using D-Shell connectors. Cables used with PanelMate ePro require a DB9(M)/DB9(F) converter [converts DB9(M) to DB9(F)].

Table 35.4-31. PLC Interface Cables for PanelMate Power Pro 1100, 1700, 3000, 5000 or ePro

Description	Catalog Number
C Series (RS-232)	**OM21**
CV Series (RS-232)	**OM22**
C Series (RS-422) cable	**OM23A**
CV Series (RS-422) cable	**OM24A**

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PROFIBUS DP Connectivity

PROFIBUS DP Interface

This PROFIBUS DP Slave Adapter interface provides communications between a PanelMate operator interface and a PROFIBUS network without requiring any additional communications modules. A maximum of one interface can be installed on each PanelMate unit.

Table 35.4-32. PROFIBUS DP Interface

Description	Catalog Number
PROFIBUS DP Slave I/O Interface	
For all PanelMate Power Pro 1100, 1700, 3000, 5000	**1247**

Siemens Connectivity

PLC Interface Cables for PanelMate Power Pro 1100, 1700, 3000, 5000 or ePro

One 15 ft (4.6m) cable, unless otherwise stated, for communications between a PanelMate 1100, 1700, 3000, 5000 or ePro unit serial port and the PLC communications port using D-Shell connectors. Cables used with PanelMate ePro require a DB9(M)/DB9(F) converter [converts DB9(M) to DB9(F)].

Table 35.4-33. PLC Interface Cables for PanelMate Power Pro 1100, 1700, 3000, 5000 or ePro

Description	Catalog Number
Siemens (RS-232) Siemens S7 HMI cable	**SI21** **SI22**

Simatic TI Connectivity

Simatic TI Communication Cables

PLC Interface Cables for PanelMate Power Pro 1100, 1700, 3000, 5000 or ePro

One 15 ft (4.6m) cable, unless otherwise stated, for communications between a PanelMate 1100, 1700, 3000, 5000 or ePro unit serial port and the PLC communications port using D-Shell connectors. Cables used with PanelMate ePro require a DB9(M)/DB9(F) converter [converts DB9(M) to DB9(F)].

Table 35.4-34. PLC Interface Cables for PanelMate Power Pro 1100, 1700, 3000, 5000 or ePro

Description	Catalog Number
TI 500, 305 (RS-232) TI 405 (RS-232) TI 545 (RS-232)	**TI21** **TI22** **TI23**
TI 305-02DM, TI 405 DCM (RS-422) cable TI 545-1101 (RS-422) cable TI 545-12102, 1104, 1105 cable	**TI25A** **TI26A** **TI27A**

Square D Connectivity

Square D Communication Cables

PLC Interface Cables for PanelMate Power Pro 1100, 1700, 3000, 5000 or ePro

One 15 ft (4.6m) cable, unless otherwise stated, for communications between a PanelMate 1100, 1700, 3000, 5000 or ePro unit serial port and the PLC communications port using D-Shell connectors. Cables used with PanelMate ePro require a DB9(M)/DB9(F) converter [converts DB9(M) to DB9(F)].

Table 35.4-35. PLC Interface Cables for PanelMate Power Pro 1100, 1700, 3000, 5000 or ePro

Description	Catalog Number
PLC processor cable NIM Network Interface Module cable	**SD21A** **SD22A**

Transfer Serial Cable

One 6.0 ft (1.8m), RS-232 cable with DB9 connectors on each end, for upload/download between standard serial PC communication port and PanelMate serial port.

Table 35.4-36. Transfer Serial Cable

Description	Catalog Number
PanelMate 1100, 1700, 3000, 5000 additional ①	**0518**

① Included in configuration software package PMPROSW and PMPROSWSL.

Converter Connectors

Connectors that convert a 9-pin D-Shell connector to a RJ11 phone jack-style connector.

Table 35.4-37. Converter Connectors

Description	Catalog Number
RS-232 DB9 (F) / RJ11 (M) converter [converts DB9 (M) to RJ11 (M)]. Ideal for converting PMPP 1700 cables for use with PMPS 1500	**0820**
RS-232 RJ11 (F) / DB9 (M) converter [converts RJ11 (M) to DB9 (M)]. Ideal for converting PMPS 1500 cables for use with PMPP 1700	**0821**

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Mounting Collars and Plates

Mounting plates and collars can be used when replacing older PanelMate products with newer models with no or minimal cutout changes required.

Table 35.4-38. Adapter Plates (Similar Look to a Painted Steel Front Panel)

Description	Catalog Number
Micro PanelMate (D820, D830, D840) to 2- or 4-line ELC graphics panel (ELC-GPxx) keypad	**APPM1ELCGP4**
6.0-inch PM 500, 1000 to 6.0-inch (HMI06xx) touchscreen and function buttons	**APPM1HMI6**
8.0-inch PM (11xxK, 17xxK, 75xxK-8) keypad to 8.0-inch (11xxT, 17xxT, 75xxT-8, 76xxT-8x) touchscreen	**APPS8A**
8.0-inch PM (11xxK, 17xxK, 75xxK-8) keypad to 8.0-inch (HMI08CE) touchscreen	**APPM1HMI8**
9.0-inch PM 2000/compact (24xx/25xx) keypad to 8.0-inch PM (11xxK, 17xxK, 75xxK-8) keypad ①	**1524TP**
9.0-inch PM 2000/compact (24xx/25xx) keypad to 8.0-inch PM (11xxT, 17xxT, 75xxT-8, 76xxT-8x) touchscreen	**1524TPTS**
9.0-inch PM 2000 (26xx/27xx) keypad to 8.0-inch PM (11xxK, 17xxK, 75xxK-8) keypad ①	**1527TP**
9.0-inch PM 2000 (26xx/27xx) keypad to 8.0-inch PM 11xxT, 17xxT, 75xxT-8, 76xxT-8 touchscreen	**1527TPTS**
9.0-inch PM 2000 (26xx/27xx) touchscreen to 8.0-inch PM (11xxT, 17xxT, 75xxT-8, 76xxT-8x) touchscreen ①	**1527TS**
10.0-inch PM 3000 (39xxK, 75xxK-10) keypad to 10.0-inch (HMI10CE) touchscreen and function buttons	**APPM2HMI10**
10.0-inch PM 3000 (39xxT, 75xxT-10, 76xxT-10x) touchscreen to (HMI10CE) touchscreen and function buttons	**APPM1HMI10**
10.0-inch PM ePro (7585K-10) keypad to 10.0-inch ePro PS (76xxT-10x) touchscreen	**APPS10A**
13.0-inch PM 5000 (54xx) keypad-split to 12.0-inch (76xxT-12x) touchscreen	**APPS12B**
14.0-inch PM 4000 (45xx), 13.0-inch 5000 (55xx/57xx) keypad to 12.0-inch PM ePro PS 12.0-inch (7685T-12) touchscreen	**APPS12A**
14.0-inch PM 4000 (45xx), 13.0-inch 5000 (55xx/57xx) keypad to 15.0-inch (7585DT-15) remote touchscreen display	**APFP15A**

① Cutting is required to make the cutout wider; drilling is required for new stud holes. For touchpanel units, see **Table 35.4-39** if cutting and drilling is not an option.

Table 35.4-39. Adapter Collars (Raise front of PanelMate 1.00 Inch [25.4 mm] from the Mounting Surface)

Description	Catalog Number
PM 2000/compact (24xx) touchpanel to PM 11xxK, 17xxK, 75xxK-8 touchpanel collar. For Type 12 installations only.	**1524TPCOLLAR**
PM 2000 (26xx/27xx) touchpanel to PM 11xxK, 17xxK, 75xxK-8 touchpanel collar. For Type 12 installations only.	**1527TPCOLLAR**

PanelMate Overlay Kits

The overlay kits are ideal for protecting your screens from dirt, grime and abrasion and are particularly desirable for PanelMate touchscreen models installed in dirty environments. These overlays have an additional anti-glare feature. The overlays simply adhere to the front of the display and can be easily removed and replaced when required. Five overlays are included in each kit.

Table 35.4-40. Overlay Kits

Description	Catalog Number
8.4-inch Anti-Glare Overlay Kit, 5 overlays/kit, for use with PanelMate 11xxT, 15xxT, 17xxT, 75xxT-8, 76xxT-8x, and HMI08CE	**17AGT**
10.4-inch Anti-Glare Overlay Kit, 5 overlays/kit, for use with PanelMate Power Pro 3000, 5000 (all 10.4-inch models), 75xx-10 (all models), 76xxT-10x and HMI10CE	**39AG**
13.0-inch Anti-Glare Overlay Kit, 5 overlays/kit, for use with PanelMate Power Pro 5000 (all 13.0-inch models)	**55AG**
12.1-inch Anti-Glare Overlay Kit, 5 overlays/kit for use with 12.0-inch PanelMate ePro PS 12.0-inch models (76xxT-12x) and 12.0-inch standalone touchscreen displays (7585DT-12)	**AG-12**
15.0-inch Anti-Glare Overlay Kit, 5 overlays/kit for use with PanelMate ePro PS 15.0-inch models (76xxT-15x) and 15.0-inch standalone touchscreen displays (7585DT-15)	**AG-15**
17.0-inch Anti-Glare Overlay Kit, 5 overlays/kit for use with 17.0-inch standalone touchscreen displays (7585DT-17)	**AG-17**

PanelMate Pro LT 1100 Tags

The PanelMate Pro LT 1100 I/O Reference Point Expansion is an upgrade kit that includes a hardware key and download software. The upgrades are provided on the hardware key and are downloaded to a PanelMate Pro LT 1100 from a PC using the provided hardware key and software. The PanelMate Pro LT supports 64 I/O points as standard and can be upgraded to support a maximum of 512 I/O points (seven upgrades installed).

Table 35.4-41. PanelMate Pro LT Expansion

Description	Catalog Number
I/O Reference Point Expansion (64 points per upgrade)	
1 x 64 I/O point expansion 5 x 64 I/O point expansion	**1100TAG1** **1100TAG5**
10 x 64 I/O point expansion 50 x 64 I/O point expansion	**1100TAG10** **1100TAG50**

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PanelMate ePro PS Restore Kits

Each Restore Kit provides a simple way to reset the load of the PanelMate ePro PS internal CompactFlash that holds the operating system to the factory-installed image or the customer's modified image. This kit is typically used as a field-recovery method for operating system problems, but it can also be used to upgrade the image load of installed units.

Each Restore Kit can be re-used to restore multiple PanelMate ePro PS units or to restore the same PS unit multiple times. The kit used for restoring the factory-installed image must match the model type of the unit being restored to maintain product integrity.

Installation requires a Microsoft-compatible USB keyboard and mouse and an Ethernet network connection.

Table 35.4-42. Restore Kits

Description	Catalog Number
New RoHS Compliant Models ①	
Kit to restore PanelMate ePro PS, OD, and Classic units to the current factory image load or the modified image	**76MLPS**
Kit to restore PanelMate ePro PS EE units to the current factory image load or the modified image	**76MLEE**
Legacy Non-RoHS Compliant Models ①	
Kit to restore PanelMate ePro PS and PS OD Display units to the current factory image load	**76MLPSD**
Kit to restore PanelMate ePro PS Blind Node units to the current factory image load	**76MLPSB**
Kit to restore PanelMate ePro PS EE Display units to the current factory image load	**76MLEED**
Kit to restore PanelMate ePro PS EE Blind Node units to the current factory image load	**76MLEEB**
Kit to restore PanelMate ePro PS Classic Display units to the current factory image load	**76MLPSCD**
Kit to restore PanelMate ePro PS Classic Blind Node units to the current factory image load	**76MLPSCB**

① RoHS compliant units have a silver-colored galvanized steel back cover. Non-RoHS compliant units have a gold-colored plated steel back cover.

Legacy Products Spare Parts

PanelMate ePro

Table 35.4-43. PanelMate ePro (75xx Series) Spare Parts

Description	Catalog Number
10.4-inch color TFT display assembly for 7585K-10 and 7585T-10 Series	**63-00778**
Keypad with window for 7585K-8 Series	**63-00796**
Touchscreen for 7575T-8 Series (gaskets 32-01682 and 32-02437 required)	**63-00837**
Gasket for touchscreen (between touchscreen and front panel) for 7575T-8 Series	**32-01682**
Gasket for touchscreen (between touchscreen and display) for 7575T-8 Series	**32-02437**
Touchscreen for 7585T-8 Series (gaskets 32-01682 and 32-02208 required)	**63-00832**
Gasket for touchscreen (between touchscreen and front panel) for 7585T-8 Series	**32-01682**
Gasket for touchscreen (between touchscreen and display) for 7585T-8 Series	**32-02208**
Keypad for 7585K-10 Series (does not include window)	**63-00805**
Plexiglass window for 7585K-10 Series	**32-02151**
Touchscreen for 7585T-10 Series	**63-00585**
Gasket for touchscreen for 7585T-10 Series (between touchscreen and display)	**32-02145**
Front panel assembly for 7585K-8 Series	**91-01985**
Front panel assembly for 7575T-8 and 7585T-8 Series	**91-01494**
Front panel for 7585T-10 Series (gaskets 32-02144 and 32-02145 required)	**32-02444**
Gasket for front panel for 7585T-10 Series	**32-02144**
Gasket for touchscreen for 7585T-10 Series	**32-02145**
Backlight kit for 7585K-8 and 7585T-8 Series	**87-02455**
Backlight kit for 7585K-10 and 7585T-10 Series	**87-02379**
Ship kit for 7585K-8 Series	**86-00086**
Ship kit for 7575T-8 and 7585T-8 Series	**86-00083**
Ship kit for 7585T-10 Series	**86-00085**
ISA 1 Port PanelMate PC adapter	**D712-DHP-ISA**

Table 35.4-44. PanelMate Power Series 2000 Spare Parts

Description	Catalog Number
PanelMate Power Series upgrade kit (adds high capacity, dynamic graphics, advanced trending and Modbus enabler)	**PMUPGRADE**

Table 35.4-45. PanelMate Power Series 3000 Spare Parts

Description	Catalog Number
Keypad with window for 39xx	**63-00743**
Touchscreen for 39xx	**63-00285**
PanelMate Power Series upgrade kit (adds high capacity, dynamic graphics, advanced trending and Modbus enabler)	**PMUPGRADE**

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Table 35.4-46. PanelMate Power Series 4000 Spare Parts

Description	Catalog Number
Membrane keypad (5-position) for 42xx	**63-00376**
Membrane keypad (15-position) for 42xx	**63-00375**
Cable for remote keypad	**90-00594**
Membrane keypad (5-position) for 45xx	**63-00391**
PanelMate Power Series upgrade kit (adds high capacity, dynamic graphics, advanced trending and Modbus enabler)	**PMUPGRADE**
Touchscreen for 45xx	**63-00773**
Display assembly for 42xx, 45xx	**91-01538**

Table 35.4-47. PanelMate Power Series 5000 Spare Parts

Description	Catalog Number
Membrane keypad (15-position) for 52xx	**63-00375**
Cable and remote keypad for 52xx	**90-00594**
Touchscreen for 55xx	**63-00773**
Touchscreen cable for 55xx	**90-00715**
PanelMate Power Series upgrade kit (adds high capacity, dynamic graphics, advanced trending and Modbus enabler)	**PMUPGRADE**
Backlight kit for 52xx, 55xx	**87-01783**

Table 35.4-48. PanelMate Power Series 1000 Spare Parts

Description	Catalog Number
Front panel, keypad assembly, painted steel for 1218 Front panel, keypad assembly, stainless steel for 218S Backlight kit for 1218, 218S	**FRPNL-1218** ① ① **87-02143**

① Contact factory.

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